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1948—1949

AMERICAN PUBLIC HEALTH ASSOCIATION
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American Public Health Association

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Presidents of the American Public Health Association

* Stephen Smith, M.D.....1872, 1873, 1874
* Joseph M. Toner, M.D..... 1875
* Edwin M. Snow, M.D..... 1876
* John H. Rauch, M.D..... 1877
* Elisha Harris, M.D..... 1878
* James L. Cabell, M.D..... 1879
* John S. Billings, M.D..... 1880
* Charles B. White, M.D..... 1881
* Robert C. Kedzie, M.D..... 1882
* Ezra M. Hunt, M.D..... 1883
* Albert L. Gihon, M.D..... 1884
* James E. Reeves, M.D..... 1885
* Henry P. Walcott, M.D..... 1886
* George M. Sternberg, M.D..... 1887
* Charles N. Hewitt, M.D..... 1888
* Hosmer A. Johnson, M.D..... 1889
* Henry B. Baker, M.D..... 1890
* Frederick Montizambert, M.D..... 1891
* Felix Formento, M.D..... 1892
* Samuel H. Durgin, M.D..... 1893
* Emmanuel P. Lachapelle, M.D..... 1894
* William Bailey, M.D..... 1895
* Eduardo Liceaga, M.D..... 1896
* Henry B. Horlbeck, M.D..... 1897
* Charles A. Lindsey, M.D..... 1898
* George H. Rohe, M.D..... 1899
* Henry Mitchell, M.D..... 1899
* Peter H. Bryce, M.D..... 1900
* Benjamin Lee, M.D..... 1901
* Henry D. Holton, M.D..... 1902
* Walter Wyman, M.D..... 1903
* Carlos J. Finlay, M.D..... 1904
* Frank F. Wesbrook, M.D..... 1905
* Franklin C. Robinson, LL.D..... 1906
* Domingo Orvananos, M.D..... 1907
* Richard H. Lewis, M.D..... 1908
* Gardner T. Swarts, M.D..... 1909
* Charles O. Probst, M.D..... 1910
* R. M. Simpson, M.D..... 1911
* J. N. Hurty, M.D..... 1912
* Rudolph Hering, Sc.D..... 1913
W. C. Woodward, M.D..... 1914
* W. T. Sedgwick, Sc.D..... 1915
John F. Anderson, M.D..... 1916
W. A. Evans, M.D..... 1917
* C. J. Hastings, M.D..... 1918
* Lee K. Frankel, Ph.D..... 1919
W. S. Rankin, M.D..... 1920
* Mazÿck P. Ravenel, M.D..... 1921
A. J. McLaughlin, M.D..... 1922
* E. C. Levy, M.D..... 1923
* W. H. Park, M.D..... 1924
Henry F. Vaughan, Dr.P.H..... 1925
C.-E. A. Winslow, Dr.P.H..... 1926
* Charles V. Chapin, M.D..... 1927
Herman N. Bundesen, M.D..... 1928
* George W. Fuller..... 1929
A. J. Chesley, M.D..... 1930
* Hugh S. Cumming, M.D..... 1931
Louis I. Dublin, Ph.D..... 1932
John A. Ferrell, M.D..... 1933
Haven Emerson, M.D..... 1934
Eugene L. Bishop, M.D..... 1935
Walter H. Brown, M.D..... 1936
Thomas Parran, M.D..... 1937
* Arthur T. McCormack, M.D..... 1938
Abel Wolman, Dr.Eng..... 1939
Edward S. Godfrey, Jr., M.D..... 1940
* W. S. Leathers, M.D..... 1941
John L. Rice, M.D..... 1942
Allen W. Freeman, M.D..... 1943
Felix J. Underwood, M.D..... 1944
* John J. Sippy, M.D.....1945–1946
Harry S. Mustard, M.D..... 1947
Martha M. Eliot, M.D..... 1948
Charles F. Wilinsky, M.D..... 1949

* Deceased

Recipients of the Sedgwick Memorial Medal

Granted " for distinguished service in public health ":

1929 Charles V. Chapin, M.D.*
1930 Theobald Smith, M.D.*
1931 George W. McCoy, M.D.
1932 William H. Park, M.D.*
1933 Milton J. Rosenau, M.D.*
1934 Professor Edwin O. Jordan *
1935 Haven Emerson, M.D.
1936 Frederick F. Russell, M.D.
1937 No award
1938 Wade H. Frost, M.D.*
1939 Thomas Parran, M.D.
1940 Hans Zinsser, M.D.*
1941 Charles Armstrong, M.D.
1942 C.-E. A. Winslow, Dr.P.H.
1943 Brig. Gen. James S. Simmons, M.C.
1944 Ernest W. Goodpasture, M.D.
1945 No award
1946 Karl F. Meyer, M.D.
1947 Reginald M. Atwater, M.D.
1948 Abel Wolman, Dr.Eng.

* Deceased

AMERICAN PUBLIC HEALTH ASSOCIATION
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Chairman of Executive Board, Hugh R. Leavell, M.D., Boston, Mass.
Executive Secretary, Reginald M. Atwater, M.D., New York, N. Y.

EXECUTIVE BOARD

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Leona Baumgartner, M.D., New York, N. Y. (1951)
Louis I. Dublin, Ph.D., New York, N. Y. (Treasurer)
Edward G. McGavran, M.D., Chapel Hill, N. C. (1949)
Lowell J. Reed, Ph.D., Baltimore, Md. (President-Elect)
Thomas F. Sellers, M.D., Atlanta, Ga. (1951)
George M. Uhl, M.D., Los Angeles, Calif. (1950)
Estella F. Warner, M.D., Washington, D. C. (1950)
Charles F. Wilinsky, M.D., Boston, Mass. (President)

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Terms Expiring 1949

Gaylord W. Anderson, M.D., Minneapolis, Minn.
A. J. Chesley, M.D., Minneapolis, Minn.
Harold S. Diehl, M.D., Minneapolis, Minn.
Ira V. Hiscock, Sc.D., New Haven, Conn.
Pearl L. Kendrick, Sc.D., Grand Rapids, Mich.
James P. Leake, M.D., Washington, D. C.
Hugh R. Leavell, M.D., Boston, Mass.
George T. Palmer, Dr.P.H., San Francisco, Calif.
James G. Townsend, M.D., Bethesda, Md.
Felix J. Underwood, M.D., Jackson, Miss.

Terms Expiring 1950

George Baehr, M.D., New York, N. Y.
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Thomas Francis, Jr., M.D., Ann Arbor, Mich.
Wilton L. Halverson, M.D., San Francisco, Calif.
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Joseph W. Mountin, M.D., Washington, D. C.
Bosse B. Randle, R.N., Mineola, N. Y.
Huntington Williams, M.D., Baltimore, Md.

Terms Expiring 1951

Charles F. Blankenship, M.D., Carson City, Nev.
Roy F. Feemster, M.D., Boston, Mass.
John E. Gordon, M.D., Boston, Mass.
Herman E. Hilleboe, M.D., Albany, N. Y.
Benjamin G. Horning, M.D., Battle Creek, Mich.
James E. Perkins, M.D., New York, N. Y.
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Dean F. Smiley, M.D., Chicago, Ill.
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SECTION OFFICERS

Health Officers

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Secy., Milton Terris, M.D., Bethesda, Md.

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Roy L. Cleere, M.D., Colorado
Richard O. Shea, M.D., Connecticut
Domingo F. Ramos, M.D., Cuba
Wilson T. Sowder, M.D., Florida
M. E. Winchester, M.D., Georgia
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Edward A. Piszczek, M.D., Illinois
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Charles A. Hunter, Ph.D., Kansas
L. Jackson Smith, M.D., Massachusetts
David Littlejohn, M.D., Michigan
————————, Minnesota
Joseph C. Willett, D.V.M., Missouri
Billy Tober, New Mexico
John L. Rice, M.D., New York City
Bernardine Cervinski, M.P.H., North Dakota
Charles E. Smith, M.D., Northern California
Carl A. Wilzbach, M.D., Ohio
Ruth H. Weaver, M.D., Pennsylvania
Eduardo Garrido-Morales, M.D., Puerto Rico
Ben F. Wyman, M.D., South Carolina
George M. Uhl, M.D., Southern California
————————, South Dakota
John J. Lentz, M.D., Tennessee
Earle W. Sudderth, Texas
E. H. Bramhall, Utah
Kathleen M. Leahy, R.N., Washington State
Katharine E. Cox, West Virginia
Robert H. Riley, M.D., Southern Branch
Florence R. Sabin, M.D., Western Branch

CONSTITUTION AND BY-LAWS

AMERICAN PUBLIC HEALTH ASSOCIATION

As Adopted at the Seventy-sixth Annual Meeting, November 10, 1948

CONSTITUTION

ARTICLE I NAME

The name of this Association, incorporated under the laws of Massachusetts, is the American Public Health Association.

ARTICLE II OBJECT

The object of this Association is to protect and promote public and personal health.

ARTICLE III MEMBERSHIP

Section 1. There shall be seven classes of constituents to be designated as Fellows, Honorary Fellows, Members, Sustaining Members, Life Members, Affiliated Societies, and Regional Branches.

Section 2. The right to hold office, except the office of Vice-President, or to serve as a member of the Governing Council, the Executive Board, or of a Section Council, or of a standing committee, or as the chairman of a committee of the Association or of a Section, or to vote for elective Councilors or on any amendment to the Constitution shall be limited to Fellows and to Life Members and Honorary Fellows who have been elected Fellows of the Association.

Section 3. The qualifications of the several classes of constituents, and the dues of each of them, the manner of their election, and their rights and privileges, except as specified in this Constitution, shall be established in the By-Laws.

ARTICLE IV GOVERNING COUNCIL COMPOSITION

Section 1. There shall be a Governing Council which shall consist of:

(a) The officers of the Association and the elective members of the Executive Board.

(b) The Chairman, Vice-Chairman, and Secretary of each Section, and the elective members of the Council of the Health Officers Section.

(c) One representative to be designated by each Affiliated Society.

(d) One representative to be designated by each Regional Branch.

(e) Thirty members of the Council, to be elected by the Fellowship of the Association, for three-year terms, one-third of whose terms shall expire each year. Such members of the Council shall be known as elective Councilors and shall be nominated and elected as provided for in the By-Laws. If an elective Councilor is elected a Section Chairman, Vice-Chairman, or Secretary, or an elective member of the Council of the Health Officers Section, or appointed the representative of an Affiliated Society, or of a Regional Branch, a Councilor to fill such vacancy shall be elected by the Governing Council. All vacancies while in office shall be filled by election for the unexpired term. After two consecutive terms, an elective Councilor shall be ineligible for reëlection to the Council during one Association year.

Section 2. The terms of all Councilors, except the representatives of Affiliated Societies and Regional Branches, shall begin immediately following the adjournment sine die of the Governing Council in existence at the time of their election and shall terminate with the adjournment sine die of the Governing Council at the annual meeting at which their respective terms expire; provided that newly elected Councilors shall have the right to attend meetings of the Council in an advisory capacity as soon as elected.

The terms of the representatives of Affiliated Societies and Regional Branches shall begin and terminate in accordance with the constitutions and by-laws of their respective organizations.

Section 3. The Officers of the Association shall be the Officers of the Council.

Section 4. A Quorum of the Council shall consist of twenty Councilors.

Section 5. Meetings of the Council shall be called by the Executive Secretary at the request of the President, or at the request in writing of any twelve Councilors. In the latter case, the call to the meeting shall be issued at least twenty days in advance of the meeting and shall state the purpose for which it is called.

ARTICLE V GOVERNING COUNCIL FUNCTIONS

The functions of the Governing Council shall be:

Section 1. To establish and amend the By-Laws of the Association.

Section 2. To establish policies for the Association and for the guidance of the Executive Board and the Officers.

Section 3. To consider all resolutions proposed for approval in the name of the Associa-

tion, and to receive and act upon a report from a committee on resolutions appointed annually by the President.

Section 4. To approve all standards promulgated in the name of the Association.

Section 5. To receive at its first session at the time and place of the annual meeting of the Association, a report from the Chairman of the Executive Board in which the work, the accomplishments, and the financial status of the Association during the year preceding such annual meeting shall be reviewed and a statement made of the major activities contemplated for the ensuing year.

Section 6. To establish Sections of the Association; to combine or discontinue them when necessary; to prescribe the qualifications of the members of Section Councils and the chairmen of Section committees; to maintain coördination among Sections; and to formulate general rules governing their policies.

Section 7. To elect the Executive Board, the officers of the Association, with the exception of the Chairman of the Executive Board and the Executive Secretary, to elect Fellows, Honorary Fellows, Life Members, and Affiliated Societies, and to establish Regional Branches.

Section 8. To publish after each of its meetings an abstract of the minutes of such meeting.

ARTICLE VI OFFICERS

The officers of this Association shall be a President, a President-elect, three Vice-Presidents, an Executive Secretary, a Treasurer, and the Chairman of the Executive Board. The officers, with the exception of the Chairman of the Executive Board and the Executive Secretary, shall be elected by written ballot of the Governing Council as provided in this article and in the By-Laws. The President-elect shall serve as such from the close of the annual meetings at which he was elected to the close of the next annual meeting, when he shall automatically become President. As President he shall serve to the close of the next succeeding annual meeting. However, in case of the inability of the President to complete his term for any reason, the President-elect shall at once succeed to the duties of President, filling the unexpired term of his predecessor and his own term consecutively. Other officers, except the Chairman of the Executive Board and the Executive Secretary, shall serve from the close of the annual meeting when elected until the close of the next annual meeting, and all officers shall serve in any case until their successors are elected and qualified. A majority vote of the Councilors voting shall be required to elect, and if no candidate receives a majority vote on the first ballot, the candidate receiving the smallest number of votes shall be dropped after each ballot in succession until a majority vote is obtained. The Chairman of the Executive Board and the Executive Secretary shall be elected by the Executive Board, which Board shall define the duties and authority of these officers, respectively.

ARTICLE VII. EXECUTIVE BOARD

Section 1. There shall be an Executive Board, consisting of the President, the President-elect, the Treasurer, and six members, to be known as the Elective Members, elected for terms of three years each by the Governing Council. The Elective Members shall be at the time of their election past or present members of the Governing Council. The terms of the Elective Members shall begin at the close of the annual meeting at which they are elected and terminate at the end of the annual meeting at the expiration of their respective terms. The terms of two Elective Members shall expire each year in rotation.

Section 2. Acceptance of membership on the Executive Board shall terminate any appointment such Fellow may hold on any of the standing committees of the Association.

Section 3. It shall be the duty of the Executive Board to direct the administrative work of the Association; to act as the Trustee of the Association's properties; to elect the Members and Sustaining Members; and in general to carry out the policies of the Governing Council between meetings of the latter.

It may designate an Assistant Treasurer whose powers shall be limited to the disbursement of funds in accordance with duly authorized budgets for the ordinary conduct of Association business. Such power shall be exercised only during a period when, in the opinion of the Board, an emergency is created due to the absence or disability of the Treasurer. Such Assistant Treasurer may be a Fellow or a corporate fiduciary institution.

In the event of a vacancy in the office of Treasurer, the Executive Board shall have power to elect a Fellow to serve as Treasurer for the unexpired term.

It shall have such further powers and duties as may be prescribed in the By-Laws.

Section 4. A Quorum of the Executive Board shall consist of five members.

ARTICLE VIII AMENDMENTS

This Constitution may be amended by the Fellows of the Association voting thereon in a ballot cast by mail, provided that the specific amendment to be acted upon is published in the official publica-

tion of the Association not less than thirty days prior to the mailing of the ballots to the Fellows by the Administrative Office, and provided further that the amendment has received prior approval by the Governing Council. The closing date for the reception of ballots shall be forty-five days from the date of the mailing of the ballots by the Administrative Office. An amendment shall become effective only upon receiving an affirmative vote on two-thirds of the ballots cast by the Fellows. The President shall designate Tellers to canvass the ballots and to report the result to the Governing Council as provided in the By-Laws.

BY-LAWS

ARTICLE I FELLOWS

Section 1. Professional health workers who have been members of the Association for at least two years, and who are of established professional standing in the field of public health (whether employed by public or private organizations or in independent private practice) shall be eligible for election as Fellows, provided that the applicant shall have reached his thirtieth birthday at the time application for Fellowship is made and subject to the further conditions of this Article.

Section 2. The following persons shall be considered to have an established professional standing in public health for this purpose:

(a) A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine with at least one year of graduate study in public health in a university, Master of Public Health, Diploma in Public Health or other equivalent degrees, according to standards approved by the Executive Board of the American Public Health Association.

(b) A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

(c) A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

(d) A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

(e) A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs (b) and (d) that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

(f) A person not covered by the above, who has made substantial contributions to public health work in his chosen branch and who has attained a recognized professional standing.

Section 3. Every application for Fellowship shall be made on an approved form and shall be sponsored by two Fellows of the Association who shall be Fellows of the Section with which affiliation is desired, provided, however, that when affiliation with a Section is not desired, the sponsors may be any two Fellows in good standing in the Association. Fellows without Section affiliation shall be known as unaffiliated Fellows.

Section 4.

(a) When an application has been duly sponsored and otherwise completed, it shall be transmitted to the Administrative Office of the Association, which shall make note thereon of such knowledge as it may have concerning the standing of the applicant in the Association. The application shall be forwarded by the Administrative Office to the Secretary of the Section in which affiliation is desired for the action of the Section Council, and, when acted upon by the Section Council, he shall return it to the Administrative Office after he shall have endorsed thereon the action of the Section Council. When the application is for unaffiliated Fellowship, the Executive Board of the Association shall act in place of the Section Council. To be eligible for election, individuals applying for Fellowship under the provisions of subsections (a) and (b) of Section 2 of this Article shall require for approval a majority vote of the Section Council or the Executive Board. All other applicants shall require for aproval a two-thirds vote of such Section Council or the Executive Board.

(b) When the application has been approved by the Section Council or the Execu-

tive Board, as above provided, it shall be voted upon by the Committee on Eligibility. Applications requiring a majority vote of the Section Council or Executive Board shall require for approval a majority vote of the Committee on Eligibility. All other applications shall require unanimous approval of the Committee on Eligibility. If approved, as above specified, and provided the name of the applicant shall have been officially published at least fifteen days in advance, the application shall be voted upon by the Governing Council, and if approved by three-fourths of the vote cast, the applicant shall be declared elected a Fellow.

Section 5.

(a) A Fellow may belong to and vote in only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the latter Section. Unaffiliated Fellows may become affiliated with a Section if approved by vote of a majority of the Council of the Section with which affiliation is desired.

(b) Fellows shall have all the rights and privileges provided for Members in addition to those specifically reserved to them by the Constitution and By-Laws.

Section 6. Honorary Fellows may be elected by a three-fourths vote of the Governing Council for distinguished service in public health. Honorary Fellowship shall not confer voting power but Honorary Fellows who have previously been Fellows or members of the Association shall retain all the privileges of Fellowship or membership.

ARTICLE II MEMBERS

Section 1. Persons professionally engaged or interested in public health work shall be eligible for election as members by a three-fourths vote cast by the Executive Board when sponsored by two members or Fellows and after approval by the Committee on Eligibility. They shall be entitled to receive the official journal of the Association, to vote for the officers and members of the Council of the Section with which they are affiliated, and upon all motions and resolutions coming before such Section, to participate generally in its proceedings and to serve on committees, except as provided in the Constitution and By-Laws. A member may belong to and vote in only one Section, but such affiliation may be transferred to another Section if approved by vote of a majority of the Council of the Section to which change is desired. Unaffiliated members may become affiliated with a Section if approved by vote of a majority of the Council of the Section with which affiliation is desired.

Section 2. Individuals or corporations interested in public health may be elected to Sustaining Membership by a three-fourths vote of the Executive Board. Sustaining Members shall be entitled to receive the journal and such other publications of the Association as the Executive Board may designate.

Section 3. Upon the recommendation of the Committee on Eligibility, any individual member or Fellow of the Association may be elected a member for life. The dues for Life Members shall be $200.00 payable within one year after election. Election to this grade shall not affect the privileges held by such an individual as a regularly elected Member or Fellow.

ARTICLE III AFFILIATED SOCIETIES

Section 1. A state or provincial public health association or similar regional society including more or less than a state, primarily composed of professional public health workers and organized for the same general objects as the American Public Health Association, may be elected by a three-fourths vote of the Governing Council as an Affiliated Society, provided that not less than twenty of its active members and at least one-half of its active members are members or Fellows of the American Public Health Association. Not more than one such society shall be admitted from the same area.

Section 2. A society applying for affiliation shall submit a copy of its constitution and by-laws, its last annual budget, a roster of its members, and such other evidences of its qualifications as may be required. It shall submit annually and at other times such reports on its financial standing, membership, and other matters as may be required by the Executive Board of the American Public Health Association.

Section 3. The Committee on Eligibility shall consider all applications for affiliation and report its recommendations to the Governing Council.

ARTICLE IV DUES

Section 1. The following constituents shall be exempt from the payment of annual dues: Honorary Fellows, Life Members, Fellows and Members who have been affiliated with the Association for thirty years or more and who have retired from active duty, and Fellows and Members who have been affiliated with the Association for forty years regardless of retirement. The dues of all other constituents are payable annually in advance.

Section 2. The dues for Members shall be

$7.00, for Fellows $12.00, and for Sustaining Members $100.00 or more.

Section 3. The dues for Affiliated Societies shall be one per cent of their gross annual income, provided that the minimum dues per society shall be $10.00 per year, and provided further that for every Fellow or Member paying annual dues to the American Public Health Association, the Association shall remit to the Affiliated Society of which such person is a member the sum of $1.00 per annum.

ARTICLE V DISCONTINUANCE OF MEMBERSHIP

Section 1. Constituents of any class whose dues are unpaid for six months or more shall be considered not in good standing. Constituents not in good standing shall not be entitled to any of the privileges or powers of membership, Fellowship, or affiliation. Good standing may be resumed upon the payment of all arreas and dues in advance for one year, provided the lapsed period is not greater than one year. The Administrative Office shall notify by registered mail all constituents who have been in arrears for a period of eleven months. The names of constituents in any class whose dues remain unpaid for one year or more and who have been duly notified as above provided shall be presented to the Executive Board which shall order the names of such constituents stricken from the membership roll. Constituents whose names have been stricken from the rolls in this manner may be again admitted in the manner provided for the election of new constituents in the class for which they make application, provided such person or organization complies with the eligibility requirements at the time the new application is made.

Section 2. If, in the opinion of the Executive Board, any member or Fellow of the Association permits the use of his name, or otherwise allows himself to be quoted or used for illustration in the advertising of a commercial product, in such a manner as to reflect discredit upon the Association, his Fellowship or membership in the Association shall thereupon be terminated.

Section 3. Upon the recommendation of the Committee on Eligibility the Governing Council may discontinue the membership, Fellowship or affiliation of any constituent. Three-fourths of the votes cast shall be necessary for such action.

ARTICLE VI PUBLICATIONS

Section 1. All publications of the Association and of its Sections shall be issued under the direction of the Executive Board.

Section 2. The American Journal of Public Health shall be the official journal of the Association. The Executive Board shall appoint a Managing Editor of the official journal and an Editorial Board of not less than five members to serve at the pleasure of the Executive Board. All papers and reports for the annual meetings are to be accepted with the understanding that they shall be the property of the Association for publication, unless this right is waived by the Managing Editor.

ARTICLE VII ELECTIVE COUNCILORS

The Elective Members of the Governing Council shall be nominated and elected according to the following procedure and schedule. The times designated for the several steps shall date from the first day of the next annual meeting as designated by the Executive Board.

Section 1. There shall be a Nominating Committee composed of one Fellow elected by each Section at the preceding annual meeting, and an additional Fellow designated by the Executive Board, the latter serving as Chairman. This Committee shall present to the Administrative Office not less than six months before the annual meeting the names of at least twenty and not more than thirty Fellows of the Association selected with due regard to geographical and membership considerations as nominees for the Governing Council.

Section 2. The Administrative Office shall publish to the Fellowship not less than five months before the annual meeting the nominees selected by the Nominating Committee and at the same time shall announce the date on which the official ballots will be mailed to the Fellows.

Section 3. Upon the petition of twenty-five Fellows the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than three months before the annual meeting.

Section 4. Not less than two months previous to the annual meeting the Administrative Office shall mail to each Fellow entitled to vote an official ballot upon which the names of all nominees shall appear in order determined by lot. Accompanying each ballot shall be two envelopes, one marked "Ballot Envelope," into which the voter shall place his marked ballot. This envelope shall then be sealed and placed in the outer envelope which shall bear the signature and address of the voter.

Section 5. Only ballots received not later than one month before the annual meeting

shall be accepted and counted. No duplicate ballots shall be furnished to any Fellow.

Section 6. All ballots received prior to the closing date shall be placed in the custody of the Tellers unopened.

Section 7. The Fellows receiving the highest number of votes on a written ballot cast by the Fellows shall be declared elected to fill vacancies which will exist at the adjournment sine die of the Governing Council at the next annual meeting. Should two or more candidates receive the same number of votes, the Governing Council shall, when necessary, determine the order of precedence of such candidates.

Section 8. Not less than sixty days before the annual meeting the President shall appoint three Tellers from among the members of the Governing Council, one of whom shall be designated as Chairman. The Tellers shall canvass the vote on elective Councilors and on any amendment to the Constitution and shall report the result of all ballots cast to the Governing Council at its first meeting during the annual meeting.

ARTICLE VIII EXECUTIVE BOARD

Section 1. The Executive Board shall elect from its own membership a Chairman who shall serve in that capacity for such term as the Executive Board shall determine. It shall also designate such other officers of the Board as it may require for the conduct of its business.

Section 2. If a vacancy among the Elective Members of the Executive Board shall occur after the annual meeting, the President shall designate a nominating committee from the Governing Council. Such committee shall nominate not less than three candidates for the vacancy, from among whom the candidate receiving the highest number of votes of the Governing Council in a mail ballot shall be declared elected to the Executive Board to fill the vacancy.

Section 3. In addition to those prescribed in the Constitution and in these By-Laws, the Executive Board shall have the following powers and duties:

(a) To plan methods for the procurement of funds.

(b) To approve the budgets for the Association's work.

(c) To conform to the policies of the Governing Council in the conduct of its work.

(d) To designate the chairmen of the standing committees, to appoint their members unless otherwise provided by these By-Laws. To authorize the establishment of all other Association committees and confirm the appointment of their members.

(e) To transmit a report of its proceedings and transactions to the Governing Council at least thirty days before each annual meeting.

Section 4. After two consecutive terms of three years an elective member of the Executive Board, except one serving as chairman, shall be ineligible for reëlection during one Association year.

ARTICLE IX NOMINATION OF OFFICERS

The officers elected by the Governing Council shall be nominated from the floor by that body.

ARTICLE X STANDING AND SPECIAL COMMITTEES

Section 1. There shall be four standing committees of the Association as follows:

(a) Committee on Eligibility.

(b) Committee on Administrative Practice.

(c) Committee on Research and Standards.

(d) Committee on Professional Education.

Section 2. Each standing committee shall designate from among its membership such officers as it may require for the conduct of its business and shall control its policies within the limitations prescribed by the Governing Council and the Executive Board. The Executive Secretary shall be a member, ex-officio, and serve as secretary of each standing committee.

Section 3.

(a) The Committee on Eligibility shall consist of one Fellow to be elected by each Section and an additional Fellow elected by the Executive Board who shall serve as Chairman. Members shall serve for a term of two years.

(b) This committee shall pass upon the eligibility of Fellows, members and other constituents in accordance with the provisions of the By-Laws.

Section 4.

(a) The Committee on Administrative Practice shall consist of fifteen Fellows, twelve of whom shall be designated by the Executive Board to serve for a term of four years, the terms of three members expiring each year, and three members elected by and from the Fellows affiliated with the Health Officers Section, one of whom shall be elected annually for a term of three years. Following the adoption of this amendment one member shall be elected to serve for one year, one for two years and one for three years.

(b) This committee shall engage in the collection of information regarding current public health practices and analyze the material obtained to derive standards of organization and achievement. The findings and standards

may be made available to public health workers through publications, information and field service under such conditions as the committee may establish. No standards shall be promulgated as the official and authorized judgment of the Association except with the approval of the Governing Council.

Section 5.

(a) The Committee on Research and Standards shall consist of fifteen Fellows representative of the various Sections of the Association appointed by the Executive Board. Members shall serve for a term of three years, the terms of five members expiring each year.

(b) This committee shall be responsible for initiating, conducting, promoting, coördinating and reviewing research and development of standards in the technical branches of public health. This committee shall also be charged with the duty of reviewing from time to time standards already established. No standards shall be promulgated as the official and authorized judgment of the Association except with the approval of the Governing Council.

Section 6.

(a) The Committee on Professional Education shall consist of twelve Fellows appointed by the Executive Board. Members shall serve for a term of three years, the terms of four members expiring each year.

(b) This committee shall be responsible for carrying out research and the development of standards for professional education and training in public health work and shall perform such other functions as may be delegated to the committee by the Governing Council with the view of maintaining professional qualifications of high standard. No standards shall be promulgated as the official and authorized judgment of the Association except with the approval of the Governing Council.

Section 7. Unless otherwise provided in these By-Laws, all other Association Committees shall be authorized and appointed by the Executive Board and the appointments of their members shall expire at the next annual meeting.

ARTICLE XI SECTIONS

Section 1. The Executive Board shall approve rules and regulations relating to the government of the Sections, and to the appointment of administrative committees. Each Section shall elect its own officers and shall name its respective Section committees. The right to hold office or to serve as a member of a Section Council or as chairman of a committee in a Section shall be limited to the Fellows affiliated with such Section.

Section 2.

(a) The Section Chairman, with the advice of the Section Council, shall appoint a Committee on Nominations from the Fellows affiliated with the Section at least fifteen days before each annual meeting. The Section Secretary shall be a member of such committee.

(b) The names of the members of the Committee on Nominations shall be announced at the first meeting of the Section at each annual meeting of the Association. The Committee on Nominations shall present at the second meeting of the Section a list of nominees for the Section officers, and for membership in the Section Council; provided that if the name of any Fellow be transmitted to the Nominating Committee over the signature of ten Fellows of the Section prior to the second meeting of the Section, the Nominating Committee shall add the name of such Fellow to its own list of nominees.

Section 3. The officers of each Section shall be a Chairman, a Vice-Chairman, and a Secretary, who shall be the representatives of the Section to the Governing Council of the Association, except as provided in the Constitution.

Section 4. New terms shall begin and old terms shall expire at the end of annual meetings. After five consecutive years in any elective Section office, except that of Secretary, a member shall be ineligible to reëlection to that office during one Association year.

Section 5. The Chairman, or in his absence the Vice-Chairman, shall preside at meetings of the Section.

Section 6. The Secretary shall prepare the scientific program of the Section for the annual meeting, subject to the recommendations of the Section Council, and shall submit same to the Administrative Office. He shall keep the minutes and other records of the Section, and shall transmit to the Executive Secretary of the Association a copy of the minutes of both the business and scientific sessions as soon as practicable after the close of the annual meeting of the Association. When unable to be present at meetings, he shall thoroughly instruct a substitute as far in advance of the meeting as possible.

Section 7. There shall be a Section Council composed of the three officers of the Section and five members, to be known as the elective members, each of whom shall be elected for a term of five years; provided that when a Section is first established one member shall be elected to serve for one year, one for two, one for three, one for four, and one for five years.

Section 8. The duties of the Section Council shall be:

(a) To recommend papers, and to make general recommendations in relation to the annual meeting program.

(b) To advise on Section membership and on Section policies.

(c) To submit annually to the Governing Council through the Executive Board a report of the transactions of the Section.

(d) To report annually to the Governing Council through the Executive Board on the plans, scope and policy of the Section during the succeeding year.

(e) To formulate rules of procedure for the Section.

(f) To consider and transmit to the Governing Council resolutions originating in the Section. Only resolutions approved by the Governing Council shall be published as representing the policy of the Association.

(g) To advise on the publication of papers and reports presented at the Section meetings.

(h) To advise with respect to the appointment of technical committees, subcommittees, or Section representatives on committees of the Association.

ARTICLE XII FINANCES

All remittances to the Association shall be deposited to the account of the Treasurer. The Treasurer shall be custodian of investments of the Association and shall disburse funds in accordance with duly authorized vouchers. With the approval of the Executive Board he may establish a drawing account for the Executive Secretary, who shall send to members of the Executive Board a financial summary of receipts and disbursements each month. Once each month, or oftener if called for, he shall also forward to the Treasurer and to the Chairman of the Executive Board an itemized statement of all expenditures. The Executive Secretary, the Treasurer and the Assistant Treasurer shall be bonded at the expense of the Association in an amount to be determined by the Executive Board. The books of the Association shall be audited annually by certified public accountants to be appointed by the Executive Board.

ARTICLE XIII MEETINGS OF THE ASSOCIATION

There shall be one general meeting of the Association, to be known as the annual meeting which shall be held each year at a place selected by the Governing Council at a time designated by the Executive Board provided, however, that the Governing Council may determine by voting at a regular meeting or by ballots cast by mail, that the annual meeting for a stated calendar year shall not be held; and provided further, that in case of great emergency the Executive Board may defer any annual meeting for not to exceed three months. Special meetings of the Association may be called by a majority vote of the Governing Council, the Executive Board, or the Association. In all proceedings of the Association, *Robert's Rules of Order* shall be official.

ARTICLE XIV AMENDMENTS

These By-Laws may be amended by a two-thirds vote of those voting on the Governing Council during the annual meeting, provided that twenty-four hours prior written notice thereof has been given. The By-laws may further be amended by a two-thirds vote of those voting at any meeting of the Governing Council called for the purpose, provided that notice thereof shall have been given at least fifteen days prior to such meeting.

ANNUAL MEETINGS

Preliminary Meeting	New York, N. Y., April 18	1872
" "	Long Branch, N. J., September 12	1872
1st Annual Meeting	Cincinnati, O., May 1–3	1873
2d " "	New York, N. Y., November 11–14	1873
3d " "	Philadelphia, Pa.	1874
4th " "	Baltimore, Md.	1875
5th " "	Boston, Mass.	1876
6th " "	Chicago, Ill.	1877
7th " "	Richmond, Va.	1878
8th " "	Nashville, Tenn.	1879
9th " "	New Orleans, La.	1880
10th " "	Savannah, Ga.	1881
11th " "	Indianapolis, Ind.	1882
12th " "	Detroit, Mich.	1883
13th " "	St. Louis, Mo.	1884
14th " "	Washington, D. C.	1885
15th " "	Toronto, Ont.	1886
16th " "	Memphis, Tenn.	1887
17th " "	Milwaukee, Wis.	1888
18th " "	Brooklyn, N. Y.	1889
19th " "	Charleston, S. C.	1890
20th " "	Kansas City, Mo.	1891
21st " "	Mexico City, Mex.	1892
22d " "	Chicago, Ill.	1893
23d " "	Montreal, Que.	1894
24th " "	Denver, Colo.	1895
25th " "	Buffalo, N. Y.	1896
26th " "	Philadelphia, Pa.	1897
27th " "	Ottawa, Ont.	1898
28th " "	Minneapolis, Minn.	1899
29th " "	Indianapolis, Ind.	1900
30th " "	Buffalo, N. Y.	1901
31st " "	New Orleans, La.	1902
32d " "	Washington, D. C.	1903
33d " "	Havana, Cuba	1904
34th " "	Boston, Mass.	1905
35th " "	Mexico City, Mex.	1906
36th " "	Atlantic City, N. J.	1907
37th " "	Winnipeg, Man.	1908
38th " "	Richmond, Va.	1909
39th " "	Milwaukee, Wis.	1910
40th " "	Havana, Cuba	1911
41st " "	Washington, D. C.	1912
42d " "	Colorado Springs, Colo.	1913
43d " "	Jacksonville, Fla.	1914
44th " "	Rochester, N. Y.	1915
45th " "	Cincinnati, O.	1916
46th " "	Washington, D. C.	1917
47th " "	Chicago, Ill.	1918
48th " "	New Orleans, La.	1919
49th " "	San Francisco, Calif.	1920
50th " "	New York, N. Y.	1921
51st " "	Cleveland, O.	1922
52d " "	Boston, Mass.	1923
53d " "	Detroit, Mich.	1924
54th " "	St. Louis, Mo.	1925
55th " "	Buffalo, N. Y.	1926

ANNUAL MEETINGS (Cont.)

56th	Annual	Meeting	Cincinnati, O.	1927
57th	"	"	Chicago, Ill.	1928
58th	"	"	Minneapolis, Minn.	1929
59th	"	"	Fort Worth, Tex.*	1930
60th	"	"	Montreal, Que.	1931
61st	"	"	Washington, D. C.	1932
62d	"	"	Indianapolis, Ind.	1933
63d	"	"	Pasadena, Calif.	1934
64th	"	"	Milwaukee, Wis.	1935
65th	"	"	New Orleans, La.†	1936
66th	"	"	New York, N. Y.	1937
67th	"	"	Kansas City, Mo.	1938
68th	"	"	Pittsburgh, Pa.	1939
69th	"	"	Detroit, Mich.	1940
70th	"	"	Atlantic City, N. J.	1941
71st	"	"	St. Louis, Mo.	1942
72d	"	"	(Wartime Conference) New York, N. Y.	1943
73d	"	"	(Wartime Conference) New York, N. Y.	1944
			No Meeting	1945
74th	"	"	Cleveland, Ohio	1946
75th	"	"	Atlantic City, N. J.	1947
76th	"	"	Boston, Mass.	1948

* Post-Convention Meeting, Mexico City, Mex., 1930.
† Post-Convention Meeting, Havana, Cuba, 1936.

PUBLICATIONS OF THE A.P.H.A.

An Appraisal Method for Measuring the Quality of Housing: A Yardstick for Health Officers, Housing Officials and Planners.
- Part I. Nature and Uses of the Method.
- Part II. Appraisal of Dwelling Conditions.
- Part III. Appraisal of Neighborhood Environment (in preparation).

Basic Principles of Healthful Housing. 2nd ed.
The Control of Communicable Diseases. 6th ed.
Diagnostic Procedures and Reagents. 2nd ed.
Directory of Public Health Statisticians, 4th ed. Oct., 1948.
Health Practice Indices, 1943–1946.
Methods for Determining Lead in Air and in Biological Materials.
Occupational Lead Exposure and Lead Poisoning.
Panum on Measles.
Photographic Sediment Chart, 1947 ed.
Planning the Neighborhood, Committee on the Hygiene of Housing, 1948.
Proceedings of the National Conference on Local Health Units. Supplement to A.J.P.H., Jan., 1947.
Public Health: A Career with a Future.
Public Health in Midstream. Supplement to A.J.P.H., Jan., 1948.
Shellfish and Shellfish Waters, Recommended Methods of Procedure for Bacteriological Examination of.
Standard Methods for the Examination of Water and Sewage. 9th ed., 1946.
Standard Methods for the Examination of Dairy Products. 9th ed., 1948.
Swimming Pools and Other Public Bathing Places, Recommended Practice for Design, Equipment and Operation of.
Diagnostic Procedures in Virus and Rickettsial Diseases. 1948.

Staff of the American Public Health Association

Professional and Administrative Personnel

Central Office, 1790 Broadway, New York 19, N. Y.

Reginald M. Atwater, M.D., Executive Secretary and Managing Editor, *American Journal of Public Health*
Jeanne L. Bickel, Office Manager and Accountant
Edith M. Boyd, Associate Secretary, Committee on Administrative Practice
Francis B. Elder, Engineering Associate
William T. Ingram, Engineering Field Associate
Augusta Jay, Editorial Associate
Roscoe P. Kandle, M.D., Field Director
Erminie C. Lacey, Statistician
Martha Luginbuhl, Research Assistant
Franziska W. Racker, M.D., Director, Vocational Counseling and Placement Service, and Associate Secretary, Committee on Professional Education
Robert E. Rothermel, M.D., Assistant Field Director
Elsie A. Siemer, Membership Secretary
Willimina Rayne Walsh, Associate Secretary
C.-E. A. Winslow, Dr.P.H., Editor, *American Journal of Public Health*

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Charles B. Frasher, Field Consultant
Elaine Grimm, Psychometrician
Elizabeth Lazo, Statistician
Lillian D. Long, Ph.D., Associate Director
Helen Wall, Office Manager

Subcommittee on the Hygiene of Housing, 321 Congress Ave., New Haven, Conn.

Carl Anderson, Assistant Field Director
Eleanor Watkins, Secretary

Subcommittee on Medical Care, P. O. 5998, Bethesda, Md.

Nathan Kramer, Administrative Assistant
Harriet Sullivan, Secretary
Milton I. Terris, M.D., Staff Director

SCIENTIFIC EXHIBIT CITATIONS BOSTON ANNUAL MEETING

At the 76th Annual Meeting in Boston 43 exhibitors participated in the Scientific Exhibit presented under the auspices of the Scientific Exhibits Committee, of which Franklin M. Foote, M.D., is *Chairman.* The members are:

Paul H. Brown, M.D.
Homer N. Calver
Vivian Drenckhahn
Francis B. Elder
Horace Hughes
S. S. Litson
Willimina Rayne Walsh

Members of the committee judged the exhibits using the following criteria:

1. Obvious public interest and attraction
2. New contribution to public health and toward better understanding
3. Clarity of presentation
4. The factor of expense of production—an inexpensively constructed exhibit, for example, that tells a good story.
5. Appropriateness for the audience

While the committee was unanimous in acclaiming the high quality of all the exhibits, it cited six outstanding exhibits as follows:

1. An Exhibit Is an Exhibit Is an Exhibit—But What Is That?—Henriette Strauss
2. Boston Health Department
3. Brookline Health Department
4. Iowa State Department of Health
5. National Tuberculosis Association
6. U. S. Public Health Service

The committee ruled out of consideration for citation exhibits sponsored by the Association itself, but declared that two were deserving of special mention. They were:

1. The Merit System
2. Health Education and Publicity Headquarters

The Association acknowledges with deep appreciation its indebtedness to its Sustaining Members whose annual dues help support the Association's general program

Sustaining Members of the American Public Health Association

American Bottlers of Carbonated Beverages, Washington, D. C.
Ames Company, Inc., Elkhart, Ind.
Association for the Aid of Crippled Children, New York, N. Y.
Borden Company, New York, N. Y.
Chlorine Institute, Inc., New York, N. Y.
Difco Laboratories, Inc., Detroit, Mich.
Diversey Corporation, Chicago, Ill.
Equitable Life Assurance Society of the United States, New York, N. Y.
John Hancock Mutual Life Insurance Company, Boston, Mass.
Hellige, Inc., Long Island City, N. Y.
Hoffman-La Roche, Inc., Nutley, N. J.
Holland-Rantos Company, Inc., New York, N. Y.
International Association of Ice Cream Manufacturers, Washington, D. C.
International Equipment Company, Boston, Mass.
Josam Manufacturing Company, Cleveland, Ohio
Lederle Laboratories Division, American Cyanamid Co., New York, N. Y.
Liberty Mutual Insurance Company, Boston, Mass.
Life Insurance Co. of Virginia, Richmond, Va.
Macmillan Company, New York, N. Y.
George W. Merck, Rahway, N. J.
Metropolitan Life Insurance Company, New York, N. Y.
National Life Insurance Co., Montpelier, Vt.
Oval Wood Dish Corp., Tupper Lake, N. Y.
Prudential Insurance Company of America, Newark, N. J.
Sealright Company, Inc., Fulton, N. Y.
Sharp and Dohme, Inc., Glenolden, Pa.
E. R. Squibb and Sons, New York, N. Y.
Sun Life Insurance Company, Baltimore, Md.
Travelers Insurance Company, Hartford, Conn.
Union Central Life Insurance Company, Cincinnati, Ohio
Upjohn Company, Kalamazoo, Mich.
West Disinfecting Co., Long Island City, N. Y.
Western and Southern Life Insurance Company, Cincinnati, Ohio
Winthrop-Stearns, Inc., New York, N. Y.
Wyeth, Inc., Philadelphia, Pa.

A.P.H.A. AFFILIATED SOCIETIES AND BRANCHES

Society and Secretary

Arizona Public Health Association, Helen Rotthaus, State Dept. of Health, Phoenix
Colorado Public Health Association, Sara L. Harrison, Westwood Public Schools, Denver
Connecticut Public Health Association, Muriel F. Bliss, Ph.D., 65 Wethersfield Ave., Hartford
Cuban Public Health Society, Dr. Raphael Calvo Fonseca, San Rafael 1170, Havana
Florida Public Health Association, Fred B. Ragland, P. O. Box 210, Jacksonville
Georgia Public Health Association, Annie J. Taylor, State Department of Health, Atlanta
Idaho Public Health Association, A. W. Klotz, State Department of Health, Boise
Illinois Public Health Association, Harold M. Cavins, Ed.D., 805 Sixth St., Charleston
Iowa Public Health Association, L. E. Chancellor, State Department of Health, Des Moines
Kansas Public Health Association, Evelyn Ford, State Board of Health, Topeka
Massachusetts Public Health Association, Elizabeth K. Caso, 695 Huntington Ave., Boston
Michigan Public Health Association, Marjorie Delavan, State Department of Health, Lansing
Minnesota Public Health Conference, D. S. Fleming, M.D., State Dept. of Health, Univ. Campus, Minneapolis
Missouri Public Health Association, L. E. Ordelheide, State Division of Health, Jefferson City
New Mexico Public Health Association, Mary M. Gilliland, Box 711, Santa Fe
North Dakota Public Health Association, Margaret L. Watts, State Dept. of Health, Bismarck
Northern California Public Health Association, L. Amy Darter, 125 Panoramic Way, Berkeley
Ohio Federation of Public Health Officials, Dr. Warren P. S. Hall, 4618 Commonwealth, Toledo
Pennsylvania Public Health Association, J. Clarence Funk, R.F.D. 1, Box 122, Fayetteville
Public Health Association of New York City, Charles A. Freck, 159-29 90th Ave., Jamaica, N. Y.
Puerto Rico Public Health Association, Rafael Pirazzi, Box 7155, San Juan
South Carolina Public Health Association, Carrie B. Du Priest, State Board of Health, Columbia
South Dakota Public Health Association, Clarence E. Sherwood, M.D., 109 Center St. W., Madison
Southern California Public Health Association, Ellarene L. MacCoy, M.D., 215 W. 5 St., Los Angeles
Tennessee Public Health Association, Monroe F. Brown, M.D., State Department of Health, 420 Sixth Ave., N., Nashville
Texas Public Health Association, Earle W. Sudderth, Dallas Co. Health Dept., Dallas
Utah Public Health Association, Dean A. Anderson, Ph.D., Brigham Young Univ., Provo
Washington State Public Health Association, Sam I. Reed, Kitsap County Health Dept., Bremerton
West Virginia Public Health Association, Annette King, State Department of Health, Charleston
Southern Branch, A.P.H.A., George A. Denison, M.D., Box 2591, Birmingham, Ala.
Western Branch, A.P.H.A. Walter S. Mangold, Univ. of California, Berkeley, Calif.

American Public Health Association

SECTION COUNCILS

1948–1949

Dental Health Section

(Organized 1943)

Philip E. Blackerby, Jr., D.D.S., *Chairman,* W. K. Kellogg Foundation, Battle Creek, Mich.
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American Public Health Association

COMMITTEES

1948–1949

THE ASSOCIATION COMMITTEE LISTS

These pages again bring to the readers the lists of Association officers and Committee members. Once again they make a goodly company representing altogether more than 150 committees and other councils, a capable and loyal group of workers.

A certain proportion of the names of those formerly carried on such lists do not appear here. They have the Association's thanks for work well done in other years and for the fine spirit in which they have recognized the fact that, for the sake of the Association and its future effectiveness, leadership must be shared and leaders constantly developed through the assumption of responsibility. Our Association is stronger today because leaders periodically have stepped aside in order that others may step forward to acquire such knowledge as they themselves have gained.

Change in leadership is an accepted policy in the Association. Such a professional society is never strong if an informed few lead many uninformed though loyal followers. A strong association is composed of leaders many of whom could at any time take their turn and lead.

As we gratefully acknowledge the debt to those who have rendered their service as they carried their responsibilities of office, we turn with hope and expectation of other achievements to the men and women who are now to lead.

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To be appointed

Committee on Training

Ellis S. Tisdale, *Chairman,* Communicable Disease Center, U.S.P.H.S., Atlanta, Ga.
Harold S. Adams
Leon A. Bradley, Ph.D.
Gilbert H. Dunstan
William C. Gibson
H. E. Miller
Thorndyke Saville

Subcommittee on Undergraduate Academic Education

John M. Hepler, C.E., *Chairman,* State Dept. of Health, Lansing, Mich.
Leon A. Bradley, Ph.D.
Herbert J. Dunsmore
Samuel H. Hopper, Ph.D.
Walter S. Mangold

Subcommittee on Graduate Academic Education

Clarence W. Klassen, *Chairman,* State Dept. of Health, Springfield, Ill.

Herman G. Baity, Sc.D.
Gilbert H. Dunstan
Harold B. Gotaas, Sc.D.
John M. Henderson
Harold A. Whittaker

Subcommittee on Field Training

William C. Gibson, *Chairman,* University of North Carolina School of Public Health, Chapel Hill, N. C.
Harold S. Adams
H. E. Eagan
Charles L. Senn
Charles D. Spangler, C.E.

Committee on Water Supply

Charles R. Cox, *Chairman,* State Department of Health, Albany, N. Y.
H. J. Darcey
Ray L. Derby
Raymond J. Faust
Arthur E. Gorman
Harold S. Hutton
Major Raymond J. Karpen, M.S.C.
Arthur D. Weston

Policy Advisory Committee to the Section Council

Joel C. Beall, *Chairman,* Macon-Bibb County Health Dept., Macon, Ga.
E. L. Baldwin
W. P. Boylston
William H. Cary, Jr., C.E.
Charles R. Cox
Gordon M. Fair
Morton S. Hilbert
William T. Ingram
Ferdinand A. Korff
David B. Lee
Harry E. Miller
Mitchell P. Mondala
Louis W. Pickles, C.E.
Harold B. Robinson

Epidemiology Section

Committee on Bathing Places (to coöperate with the Committee on Bathing Places of the Engineering Section)

Ralph E. Wheeler, M.D., *Adviser*

Committee on Air Pollution (to coöperate with the Committee on Air Pollution of the Engineering Section)

Hollis E. Ingraham, M.D., *Adviser*

Food and Nutrition Section

Committee on Chemicals Introduced in Foods

Franklin C. Bing, Ph.D., *Chairman,* American Institute of Baking, Chicago, Ill.
(Personnel to be appointed)

Committee on Membership and Fellowship

Marjorie M. Heseltine, *Chairman,* U. S. Children's Bureau, Washington, D. C.
Enos B. Buchanan
Edna Mae McIntosh
Frederic W. Nordsiek
Harold R. Sandstead, M.D.
Frances N. Shoun

Nominating Committee

Ethel Austin Martin, *Chairman,* National Dairy Council, Chicago, Ill.
Marietta Eichelberger, Ph.D.
Bernard E. Proctor, Ph.D.
Glenn G. Slocum, Ph.D.

Committee on Sanitary Practices in the Food Industry

Harry E. Goresline, Ph.D., *Chairman,* U. S. Department of Agriculture, Washington, D. C.
Paul S. Prickett, Ph.D., *Vice-Chairman*
Harold S. Adams
J. Lloyd Barron, C.E.
Gail M. Dack, M.D.
V. L. Ellicott, M.D.
Edward L. Holmes, Ph.D.
Lloyd B. Jensen, Ph.D.
Cyril K. Johns, Ph.D.
Walter L. Mallmann, Ph.D.
Joseph G. Molner, M.D.
E. H. Parfitt, Ph.D.
Glenn G. Slocum, Ph.D.

Health Officers Section

Committee on Professional Education

V. A. Van Volkenburgh, M.D., *Chairman,* State Department of Health, Albany, N. Y.
C. F. Blankenship, M.D.
John Hackler, M.D.
E. A. Piszczek, M.D.

Committee on Salary Schedules

Edward G. McGavran, M.D., *Chairman,* University of North Carolina, Chapel Hill, N. C.
Dwight M. Bissell, M.D.
Malcolm R. Bow, M.D.

Industrial Hygiene Section

Committee on Administrative Practices

J. G. Towsend, M.D., *Chairman,* Industrial Hygiene Division, U. S. Public Health Service, Washington, D. C.
W. E. Frederick, Ph.D.
J. M. MacDonald, M.D.
V. A. Nasatir, M.D.
M. F. Trice
J. Y. Ziano, R.N.

Committee on Atmospheric Comfort

C. P. Yaglou, *Chairman,* Harvard School of Public Health, Boston, Mass.
Anna M. Baetjer, D.Sc.
Willard F. Machle, M.D.
William J. McConnell, M.D.
Loyal A. Shaudy, M.D.
C.-E. A. Winslow, Dr.P.H.
William N. Witheridge

Committee on Chemical Procedures

Frederick H. Goldman, 'Ph.D., *Chairman,* U. S. Public Health Service, Washington, D. C.
Allan L. Coleman
H. B. Elkins, Ph.D.
Francis H. Holdin
Morris B. Jacobs, Ph.D.
S. L. Moskowitz, Ph.D.
W. Roberts
Alfred N. Setterlind

Committee on Industrial Ventilation

Allen D. Brandt, Sc.D., *Chairman,* Bethlehem Steel Company, Bethlehem, Pa.
George M. Hama
W. B. Harris
W. C. L. Hemeon
Leslie Silverman, Sc.D.
William N. Witheridge

Committee on Inter-Society Coöperation

J. J. Bloomfield, *Chairman,* U. S. Public Health Service, Washington, D. C.
Herbert G. Dyktor
Lloyd M. Farner, M.D.
Leonard Greenburg, M.D.
T. Lyle Hazlett, M.D.
Kenneth M. Morse
Frank A. Patty
C. M. Peterson, M.D.
Lester M. Petrie, M.D.
C. O. Sappington, M.D.

Committee on Metallic Poisons

Robert A. Kehoe, M.D., *Chairman,* Kettering Laboratory of Applied Physiology, Cincinnati, Ohio
Edgar C. Barnes
H. B. Elkins, Ph.D.
J. William Fehnel
Lawrence T. Fairhall, Ph.D.
William G. Fredrick, Sc.D.
May R. Mayers, M.D.

Committee on Methods of Examining Dusty Air

Dohrman H. Byers, *Chairman,* U. S. Public Health Service, Washington, D. C.
Clyde M. Berry, Ph.D.
Carlton E. Brown, Sc.D.
Frederick H. Goldman, Ph.D.
Leonard Greenburg, M.D.
Theodore F. Hatch
Fred R. Ingram
Leslie Silverman, Sc.D.

Committee on Pneumoconiosis

Leonard Greenburg, M.D., *Chairman,* State Department of Labor, New York, N. Y.
Waldemar C. Dreessen, M.D.
Lloyd E. Hamlin, M.D.
Theodore F. Hatch
Dudley A. Irwin, M.D.
D. F. O. Kaltreider, Jr., M.D.
O. A. Sander, M.D.

Committee on Volatile Solvents

James H. Sterner, M.D., *Chairman,* Eastman Kodak Company, Rochester, N. Y.
Warren A. Cook
H. B. Elkins, Ph.D.
William G. Fredrick, Sc.D.
Don D. Irish, Ph.D.
Helmuth H. Schrenk, Ph.D.
Henry F. Smyth, Jr., Ph.D.
W. F. Von Oettingen, M.D.
William P. Yant

Laboratory Section

Committee on Antibiotics

(Chairman and members to be appointed.)

Laboratory Section Archivist:

Anna M. Sexton, State Department of Health, Albany, N. Y.

Committee on Salaries

Malcolm H. Merrill, M.D., *Chairman,* State Health Department, Berkeley, Calif.
Katharine E. Cox
Albert V. Hardy, M.D.
Edmund K. Kline, Ph.D.
Francis C. Lawler, Sc.D.
Lawrence J. Peterson
James T. Ritter

See Coördinating Committee on Laboratory Methods under the Committee on Research and Standards for Laboratory Methods Committees and their Personnel.

Maternal and Child Health Section

Committee on Membership and Fellowship

Paul R. Ensign, M.D., *Chairman,* State Board of Health, Topeka, Kan.
Hester B. Curtis, M.D.
T. Paul Haney, M.D.
Edythe P. Hershey, M.D.
Herbert R. Kobes, M.D.
Kenneth S. Landauer, M.D.
Hans Meyer, M.D.
Edward R. Schlesinger, M.D.
Allan C. Thurman, M.D.

Program Committee

Edward Davens, M.D., *Chairman,* State Department of Health, Baltimore, Md.
Katherine Bain, M.D.
Samuel R. Berenberg, M.D.
Amos Christie, M.D.
Samuel B. Kirkwood, M.D.
Louis Spekter, M.D.
Leon Sternfeld, M.D.
Harold C. Stuart, M.D.
Myron E. Wegman, M.D.
Samuel M. Wishik, M.D.

Public Health Education Section

Cross Section Committees

(Personnel to be appointed)

Committee on Case Studies in Community Organization

Lucy S. Morgan, Ph.D., Chairman, University of North Carolina, Chapel Hill, N. C.
Vivian Drenckhahn, *Vice-Chairman*

Committee on Materials and Techniques

Beryl J. Roberts, *Chairman,* Harvard University School of Public Health, Boston, Mass.
Yolande Lyon, *Vice-Chairman*

Committee on Public Health Education Planning

Mayhew Derryberry, Ph.D., *Chairman,* U. S. Public Health Service, Washington, D. C.
Ann W. Haynes, *Vice-Chairman*

Committee on Public Health Films

Kenneth D. Widdemer, *Chairman,* 15 Meadow Avenue, Bronxville, N. Y.

Committee on Utilization of Commercial Advertising for Health Education

Mary P. Connolly, *Chairman,* University of Michigan, Ann Arbor, Mich.
Homer N. Calver, *Vice-Chairman*

School Health Section

Planning Committee for Health Education and Publicity Headquarters

Marjorie L. Craig, *Chairman,* Metropolitan Life Insurance Co., New York, N. Y.
Vera H. Brooks
Marian V. Fegley
S. S. Lifson
Bosse B. Randle
Mary V. Rappaport
Alice H. Smuts
Ernest I. Stewart, Jr.
George M. Wheatley, M.D.
Pauline Brooks Williamson

Study Committee on Health Content of Textbooks

Holger F. Kilander, Ph.D., *Chairman,* Office of Education, Washington, D. C.
Fred V. Hein, Ph.D.
Harold H. Mitchell, M.D.

Study Committee on Health Service Records

Dorothy B. Nyswander, Ph.D., *Chairman* University of California School of Public Health, Berkeley, Calif.
Jessie M. Bierman, M.D.
Cyrus H. Maxwell, M.D.
David A. Van der Slice, M.D.
George M. Wheatley, M.D.

Statistics Section

Committee on Cancer Statistics

Eschscholtzia L. Lucia, Ph.D., *Chairman,* State Department of Public Health, San Francisco, Calif.
Harold F. Dorn, Ph.D.
Martha C. Eaton
E. C. Hammond, Sc.D.
Eleanor J. MacDonald

Committee on Marriage and Divorce Statistics

Elizabeth Parkhurst, *Chairman,* State Department of Health, Albany, N. Y.
William M. Haenszel
Samuel C. Newman, Ph.D.
H. G. Page

Committee on Medical Care Statistics

W. Thurber Fales, Sc.D., *Chairman,* City Department of Health, Baltimore, Md.
Margaret C. Klem
Selwyn D. Collins, Ph.D.
Nathan Sinai, Dr.P.H.
Dean A. Clark, M.D.

Committee on Membership and Directory

Iwao M. Moriyama, Ph.D., *Chairman,* National Office of Vital Statistics, Washington, D. C.
Marjorie T. Bellows
Clara E. Councell, Ph.D.
Marguerite F. Hall, Ph.D.
Elliott H. Pennell
Samuel Shapiro

Committee on Occupational and Industrial Mortality Statistics

Robert J. Vane, *Chairman,* Metropolitan Life Insurance Co., New York, N. Y.
William M. Gafafer, D.Sc.
J. D. B. Scott
Robert C. Strauss

Committee on Opportunities and Functions of Statisticians

Paul M. Densen, Sc.D., *Chairman,* Veterans Administration, Washington, D. C.
Antonio Ciocco, D.Sc.
Halbert L. Dunn, M.D.
Mary A. Ross, Ph.D.
Oswald K. Sagen, Ph.D.
Alan E. Treloar, Ph.D.
Howard West, Ph.D.

Committee on Sampling Techniques in Public Health Statistics

Theodore D. Woolsey, *Chairman,* U. S. Public Health Service, Washington, D. C.
Nathan Keyfitz
Margaret P. Martin, Ph.D.
Felix E. Moore, Jr.

Representatives of the American Public Health Association to Other Organizations and Committees for 1949

Advisory Council on Medical Education
William P. Shepard, M.D.
James A. Doull, M.D., alternate

American Association for the Advancement of Science
Reginald M. Atwater, M.D.
C.-E. A. Winslow, Dr.P.H.

American Association of Teachers Colleges Committee on Standards and Survey
Jessie M. Bierman, M.D.,
Representing the School Health Section

American Documentation Institute (1946–1950)
Halbert L. Dunn, M.D.

American Hospital Association (liaison representative)
Charles F. Wilinsky, M.D.

American Society of Health and Ventilation Engineers—Advisory Committee
Charles F. Wilinsky, M.D.

American Society for Testing Materials—Committee on Soap
Carl R. Fellers, Ph.D.

American Standards Association

Building Code Correlating Committee (1947–1949)
J. Lloyd Barron, C.E.

Letter Symbols and Abbreviations for Science and Engineering
Earle B. Phelps

Safety Code for Dry Cleaning Establishments
H. H. Schrenk, Ph.D.
H. G. Dyktor, alternate

Sectional Committee on Allowable Concentrations of Toxic Dusts and Gases
J. J. Bloomfield

Sectional Committee on Bedding and Upholstery—Subcommittee on Sterilization
F. J. Maier

Sectional Committee on Building Code Requirements for Light and Ventilation
Rollo H. Britten
C.-E. A. Winslow, Dr.P.H.

Sectional Committee on Minimum Requirements for Plumbing and Standardization of Plumbing Equipment, A-40 and Subcommittee No. 1
M. Warren Cowles
Sol Pincus, C.E.

Sectional Committee on Places of Outdoor Assembly
J. Lloyd Barron, C.E.

Sectional Committee on School Lighting
Leonard Greenburg, M.D.
Joel I. Connolly, alternate

Sectional Committee on the Safety Code for Exhaust Systems Z-9
Allen D. Brandt, Sc.D.

Sectional Committee on the Safety Code for Industrial Sanitation in Manufacturing Establishments
Leonard Greenburg, M.D.
Kenneth E. Markuson, M.D., alternate

Sectional Committee on Safety in Electric and Gas Welding and Cutting Operations, Z-49
Allen D. Brandt, Sc.D.

Ventilation Code
Earle B. Phelps

American Trudeau Society, National Tuberculosis Association, and the American Hospital Association (Joint with the A.P.H.A.)
Joseph G. Molner, M.D.

Biological Stain Commission
Edmund K. Kline, Dr.P.H.

Board to Certify Non-Medical Experts in Human Nutrition
Charles G. King, Ph.D.

Children's Bureau

Committee on Maternal and Child Health and Crippled Children's Services
Dean W. Roberts, M.D.
A. L. Van Horn, M.D.
Myron E. Wegman, M.D.

Council on Rheumatic Fever
David D. Rutstein, M.D.
George M. Wheatley, M.D.

Interim Commission on Chronic Disease
Dean W. Roberts, M.D.
Edward S. Rogers, M.D.

Joint Committee for the Coördination of Medical Activities
Reginald M. Atwater, M.D.

Joint Committee on Water and Sewage Works Terms (Joint with the American Society of Civil Engineers, the American Water Works Association and Federation of Sewage Works Associations)
Sol Pincus, C.E.

National Advisory Committee for Brucellosis Eradication
James P. Leake, M.D.

National Bureau of Standards—Standing Committee on Insect Wire Screening TS-3977
C. C. Kiker

National Conference for Coöperation in Health Education
Charles C. Wilson, M.D.

National Conference on Uniform Traffic Accident Statistics
Robert J. Vane

National Council on Rehabilitation
Hart E. Van Riper, M.D.

National Health Council
Reginald M. Atwater, M.D.
Louis I. Dublin, Ph.D.
Ernest L. Stebbins, M.D.

National Organization for Public Health Nursing
Committee on Study of Costs in Public Health Nursing
Abel Wolman, Dr.Eng.

Joint Committee on Community Nursing Service
Alfred L. Burgdorf, M.D.

School Health Committee
Mary E. Spencer, Ph.D.,
Marjorie Young,
Representing the School Health Section

National Research Council
Food and Nutrition Board
To be appointed.

National Safety Council
Home Safety Advisory Committee
Edward S. Rogers, M.D.

National Committee on Films for Safety
Harry E. Kleinschmidt, M.D.

National Technological Civil Protection Committee
Abel Wolman, Dr.Eng.
Arthur E. Gorman, alternate

Office of Civil Defense Planning
Medical Advisory Committee
Bruce H. Douglas, M.D.

Selection Board for World Health Organization Fellowships
Hugh R. Leavell, M.D.

U. S. Department of Agriculture
Poultry Industry Advisory Committee
Earle G. Brown, M.D.
Ferdinand A. Korff

U. S. National Commission for UNESCO Second National Conference
Howard Whipple Green

Report of the Chairman of the Executive Board of the American Public Health Association to the Governing Council, 1947-1948

AS the Association marked in 1947 the 75th anniversary of its founding, the Chairman of the Executive Board called the attention of the Governing Council to the growing pains that had been experienced in the organization during the preceding year. The Association with its dynamic program had outgrown its headquarters, staff, and its previously defined boundaries, and the Executive Board, it will be recalled, with the staff had given extended time to the solution of the attendant problems. These involved changes in the Constitution and By-Laws, a complete appraisal and renovation of the mechanics of the Annual Meeting, rearrangement with reference to editorial responsibilities of the *Journal,* the establishment of a new Association-wide Coördinating Committee on Laboratory Methods, and many other growing changes.

The year now ending has again reflected the growth of a dynamic organization in touch with the times and changing its structure from time to time to meet the changing conditions. This is a wholesome process.

INCOME FROM MEMBERSHIP AND SPECIAL FUNDS

At the 1947 Annual Meeting the Governing Council voted to increase Association dues from $5 to $7 for members and from $10 to $12 for Fellows. Life Membership dues were increased from $100 to $200. This was the first change in membership dues in 75 years. The Council will wish to know the result of this decision on the membership income of the Association.

The renewal rate for 1948 has stood very close to that for 1947, the figures as of September 1 being 91.3 per cent for 1948 and 93.3 per cent for 1947. The 1948 applications for Fellowship stand at a high level, namely 261 as compared with 142 for 1947. Life Membership applications were received at the old rate up to December 31, 1947, and the Council will act this year on 164 applications, an all-time high. In the 12 months since the last Report to the Council (as of September 1) there were 1,227 applications for membership in the Association. This compares with a 5 year average in the preceding period of 1,377. The total membership as of September 1, 1948, stood at 11,531.

The Executive Board regards this record as very gratifying and it believes that the Governing Council was well advised to take the steps in 1947 which revised the financial structure in this way. Membership income, including that from members, Fellows, Affiliated Societies, Branches, and Sustaining Members, is expected to reach $82,160 in 1948, an increase of $15,460 over the actual income for 1947. Most of this difference goes back to the change in dues.

MEMBERSHIP INCOME AND THE ASSOCIATION BUDGET

The Chairman of the Executive Board believes that the Governing Council

members should understand the fundamental nature of this membership income in the Association budget. It represents the only large amount of unallocated funds at the disposal of the Executive Board. It is possible to provide from this source those funds necessary to publish and distribute the *American Journal of Public Health,* to operate the Annual Meeting, and to maintain the most essential parts of the committee structure through which professional goals are progressively achieved. These may be described as the basic functions of any professional society.

It is evident to anyone familiar with the A.P.H.A. that there are many activities carried out over the years above and beyond this limited service. To a very large extent the activities of the Committee on Administrative Practice during the last 28 years have been financed by grants and other income outside this nucleus at the disposal of the Association. During this period funds of at least $800,000 have been contributed by foundations, life insurance companies, and governments to make possible the work of this one Standing Committee of the Association. As a result field consultation services have been available, often at no cost or at a fraction of the actual cost, to states and municipalities wishing to use them. Surveys have been made, evaluation methods have been developed, and summaries have been published (as in *Health Practice Indices)* that have been distinctly useful.

Likewise the Committee on Professional Education has operated services financed by grants which have supplemented the activities of this Standing Committee in several respects. Since 1941 the Merit System Service has constructed examinations for the selection of public health personnel. These have been used by 35 states and some smaller areas and by the U. S. Public Health Service for the selection of its own appointees. Funds aggregating more than $150,000 have been made available for this purpose. Another separately financed project of the C. P. E. relates to the accreditation of schools of public health. During the last 3 years the Commonwealth Fund has made available for this purpose a sum of $27,000.

In each of these instances as well as in the case of the Committee on the Hygiene of Housing, these outside funds have been utilized to advance the purposes for which they were given, but none of these funds have been used for the upkeep of the services underlying the special objective. Without a considerable staff and organization financed by the Association itself, these notable projects could not have been operated. With such a basic organization and staff, these and others can be operated for the benefit of the public and for the advancement of the professions making up today's public health.

To put it in another way, it should be noted that membership dues of the Association even at the increased rate will account for only 20 per cent of the Association's income in 1948. For every dollar paid in membership dues $6.50 must come from other sources to carry on the work of the Sections. of the Committee on Administrative Practice, the Committee on Professional Education, the Merit System Service, the Vocational Counseling and Placement Service, the Information Service, the Subcommittee on the Hygiene of Housing, the Subcommittee on Medical Care, the Engineering Section Project, and numerous other committee and Association activities.

A SOUND BUDGET PERMITS EXPANSION

It is the considered opinion of the Executive Board that the Association now stands in a much sounder position with the increased membership income and that this pattern of encouraging out-

side projects can be further extended. In addition the membership and Fellowship have received dividends on their dues during 1948 which have been appreciated. Among these are the Supplement to the January issue of the *Journal* containing the addresses from the extraordinary Special Sessions held at the Atlantic City meeting. Another dividend is the *Year Book* which carried a wealth of Association information and which was distributed free with the May *Journal*. Still another benefit lies in the enlarged *Journal* which in the first 8 months of 1948 contained 1,200 text pages as compared with 1,088 text pages in the corresponding period of 1947.

The Executive Board believes that a prior claim on any remaining funds from this increase of dues should be an extension of the professional staff in the central office. It was 14 years ago that the Board as a matter of faith set itself to support a full-time, professionally trained physician as Executive Secretary. Other staff members have been added from time to time so that at present the professional members of the staff on full time include 5 physicians, 2 engineers, 2 housing experts, statistically trained persons, and an excellent supporting staff. Several part-time individuals serve the Association and the *Journal* in various capacities. The Board is now of the opinion that the time has come to add another medically trained public health administrator to the central staff and it has sought for some months to find the right associate for the Executive Secretary. Such a person will make it possible for the public relations activities of the Association to be developed more adequately. The Board appreciates the excellent progress that has been achieved to date even without a staff fully adequate in numbers. It will readily be seen that there is no difficulty in alloting these new funds for useful purposes.

RELATIONS WITH THE NATIONAL HEALTH COUNCIL

The Governing Council will recall that the Association has been an active member of the National Health Council since the creation of that agency in 1921. This has provided opportunity for the Association to be well housed in convenient relationship to many other national (or international) agencies and has made possible the development of the National Health Library and similar services which would have been beyond the reach of single agencies.

The Association took a leading part in stimulating a four year study of national health agencies which was concluded in 1945 under a grant from the Rockefeller Foundation. Since that time plans for expanding the National Health Council have been laid with the aim that it might become a useful agency for joint planning among national health interests. This plan has been effectuated in 1948 with the appointment of a full-time and well qualified executive director for the Council and through the support of national health agencies and the Rockefeller Foundation. During the last 2 years the Executive Secretary of the Association has served in a voluntary capacity as Secretary of the National Health Council and a considerable load of organization has fallen on him during the developmental period. Several other members of the Governing Council and of the Executive Board have served in close coöperation during these years. We believe that the future of the National Health Council has great promise and that some of the goals of the Association can best be secured through these channels. A first rate example of this fact lies in the help which the National Health Council has already provided in the planning for local health units to cover the nation. Other A.P.H.A. goals such as the cultivation of strong citizen support for public health can be advanced likewise

through the National Health Council.

REVISIONS PROPOSED FOR CONSTITUTION AND BY-LAWS

The Governing Council has on several recent occasions expressed appreciation for the service rendered by the Committee on Constitution and By-laws. Periodic revisions of these documents appear to have kept them abreast of the Association's growth. It is the opinion of the Executive Board that the report which will be presented this year by this Committee is again important and worthy of close study. Members of the Council have already been advised of the proposed revision of the Constitution for the purpose of broadening the participation of members in the voting. The Board believes that this is a wise step and that the impression now abroad among members that they should have greater voting power is well founded. There is no proposal to change the provision that the officers of the Association, members of the Governing Council and Committee Chairmen must be Fellows. It is proposed, however, to allow both Fellows and members to vote for Elective Councillors and by mail, so that attendance at the Annual Meeting will not be required for exercise of the franchise. The Board urges the members of the Governing Council to use their influence in supporting this proposal which will be voted on by the Fellows present at the Boston meeting in November. Suitable new By-Laws will be presented to the Council in Boston to implement the Constitutional changes if they are approved.

NEW ASSOCIATION ACTIVITIES

At the 75th Annual Meeting consideration was given to the appointment of a special Association Committee on Child Health with representation from the Maternal and Child Health, School Health, Health Officers, Public Health Nursing, and Public Health Education Sections. The Executive Board has established this Committee under the Chairmanship of Dr. Leona Baumgartner and a thorough effort has been made to finance activities that relate to the health and medical care of children and to maternity care. It is also expected that this Committee will act for the A.P.H.A. in its relations with national organizations and agencies, professional and non-professional, which are concerned with the advancement of child health. Activities along these lines are well underway, especially with reference to the American Academy of Pediatrics and its Committee on Improvement of Child Health. It is expected that the program of this Committee on Child Health will include the development of recommended standards, procedures and policies, studies of content of program, standards of performance, recommendations regarding undergraduate and graduate education of professional and technical workers in this field and the research or investigations required.

The Committee on Research and Standards has reactivated its Subcommittee on Communicable Disease Control looking toward a new edition of the *Control of Communicable Diseases* in 1950. For more than 30 years the Association has prepared and published this comprehensive report that has world-wide acceptance. The 1945 edition was prepared with the coöperation of the British Ministry of Health as well as with American official agencies. It is anticipated that the 1950 edition will include participation of the appropriate North American agencies, including Canada, and that in addition the British and Scottish Ministries of Health will be represented. In all probability, coöperation will be arranged with the World Health Organization in order that to an increasing extent this report may become an international document. In the meantime, the Association is proud to have had sponsored this ac-

tivity over more than 3 decades, all of which has been under the Chairmanship of Dr. Haven Emerson.

STANDING COMMITTEE REPORTS

Again this year we shall hear reports from Dr. William P. Shepard, Chairman of the Committee on Professional Education; Dr. Wilton L. Halverson, Chairman of the Committee on Administrative Practice; and Dr. Thomas Francis, Jr., Chairman of the Committee on Research and Standards. Inasmuch as these reports will be presented at the Boston meeting and published in the *Year Book,* I need not systematically review their content, but in the case of each of these Standing Committees, good progress has been achieved during the year. The Governing Council will wish me, on behalf of the Association at large, to express cordial appreciation of the faithful service of these Committee Chairmen and of the members of these Committees around whom the professional work of the Association is organized.

Another important Standing Committee which functions most actively at the time of the Annual Meeting is the Committee on Eligibility under the Chairmanship of Dr. Vlado A. Getting, whose Committee has reviewed at the request of the Executive Board the practice of other professional societies in the remission of dues to members of long standing. A proposal will be brought before the Governing Council at the Boston meeting having the approval of the Executive Board and the Committee on Constitution and By-Laws which seeks to set up a modest but effective way of relieving our colleagues of membership dues at the time of retirement after membership of at least 30 years' duration.

MEMBERSHIP

On September 1, 1948, the total membership was 11,531 as compared with the figure in the preceding year at the same time of 11,382. Since the Association last met in Boston in 1923 there has been a net increase of 8,588 in the membership. Ten years ago the membership was less than half the present figure.

Of our more than 11,000 members, *1,874* are Fellows. Two hundred sixty-one applications for Fellowship will be considered by the Committee on Eligibility at the Boston meeting.

The circulation of the *American Journal of Public Health* has continued high during the year and now reaches *13,945* members and subscribers each month. The adjustment of advertising rates made in 1947 seems to have been equitable and wise.

SOME SPECIAL DIFFICULTIES

The Governing Council should know that it has become increasingly difficult to finance two of the activities of the Association which have already made lasting contributions. I refer to the program of the Subcommittee on the Hygiene of Housing first established in 1937 and conducted since then under the leadership of Professor Winslow and with an effective staff. The members of the Council will recall the publication *Basic Principles of Healthful Housing* which has had a decade of usefulness, and more recently the *Appraisal Method for Measuring the Quality of Housing,* now available in four volumes, providing the first objective means of measuring the sanitary quality of housing available to health departments, city planners, and housing authorities. This activity grew out of the work of the Health Committee of the League of Nations years ago and compares favorably with the other national committees on housing set up at that time of which this is believed to have been the only one under nonofficial auspices. Well over $100,000 has been expended in the promotion of this task and Professor

Winslow and the members of the Committee are to be highly commended. The value of these services is not to be measured in dollars but it is to be hoped that the dollars necessary to carry it on can be found from among those persons and agencies with foresight who see the significant value in this work.

In this connection it is a pleasure to record the sustained support which has been received from the Milbank Memorial Fund across the years in this project. Other agencies contributing have included the National Tuberculosis Association, the Woman's Foundation, the Metropolitan Life Insurance Company, and other groups whose support is greatly appreciated.

The other present activity of the Association whose support is threatened is the Engineering Section Project described a year ago which looked forward to research and demonstration in the field of administrative practice as applied to environmental sanitation, including such basic factors as job evaluation and program evaluation. The whole field of training and education for personnel to be employed in this specialty has been given systematic review. The first two years of the project have been concluded under the joint support of the National Foundation for Infantile Paralysis and a group of firms related to community sanitation. Their combined support has made possible the employment of an engineering field associate whose work is suitably coördinated with the Engineering Section, the Committee on Administrative Practice, and the Committee on Professional Education. Again it is hoped that the merit of this project will be apparent to those who can see its inherent values.

ACKNOWLEDGMENTS

The Executive Board is happy to acknowledge the indebtedness of the Association and of the public health professions to the officers, the Governing Council members, the Sections, and the numerous Association and Section Committees which have functioned with enthusiasm and effectiveness during the past year.

Again we extend our appreciation and gratitude for the financial support which comes from many sources. We recognize that the work of the Committee on Administrative Practice again has been dependent on the generous and continuing support of the Commonwealth Fund given for the program of the Subcommittee on State and Local Health Administration. A three year program for the Accreditation of Schools of Public Health as originally set up has now been completed as a joint project between the Association and the Commonwealth Fund, the latter supplying the operating support.

Again the work of the Subcommittee on Local Health Units which has been linked in 1948 with the new program of the National Health Council has been made possible by the W. K. Kellogg Foundation. The activities of the Subcommittee on Medical Care have again been supported by a generous grant from the Rockefeller Foundation. The American Drug Manufacturers Association has continued its support of the studies on pertussis antigen made under the auspices of the Subcommittee on Evaluation of Administrative Practice.

The Merit System Service and Vocational Counseling and Placement Service through part of the year have been maintained in partnership with the U. S. Public Health Service, the Children's Bureau, and the National Foundation for Infantile Paralysis.

The Albert and Mary Lasker Foundation provides the Lasker Awards and funds for their administration.

Special mention is due to the faithful support received from our Sustaining Members which in the aggregate amounted to $8,000 in the general budget. Without this unrestricted

money some of the most fruitful services of Association committees would have been impossible as, for example, the publication in 1948 of the 9th edition of *Standard Methods for the Examination of Dairy Products*.

Of course there should be mentioned the enduring loyalty of thousands of those from whom this professional society calls out the best in voluntary service. It is a priceless ingredient to find busy doctors, engineers, and nurses, to mention only three groups, eager and ready to assume new tasks for the common good. The Association needs their help.

Again it is a pleasure to acknowledge the loyalty and intelligence of the permanent staff who make these accomplishments possible.

Once again, the Board has satisfaction in reporting another useful year to the Governing Council.

ABEL WOLMAN, DR.ENG., *Chairman*

Administrative Practice*

SIGNIFICANT public health developments in the Northeastern area of the United States are of particular interest to the committee. A more liberal administrative attitude toward the consolidation of units of government for effective local health services is noted. A state study became a public record in the Commonwealth of Massachusetts, the evaluation process has been adopted as a basis for program planning and linked with the grant-in-aid administration in New York State, and a year-long study in Pennsylvania is being completed.

In many other states the extent of citizen interest in both expanding and improving community health services would indicate a more liberal administrative attitude elsewhere. As an illustration of the kind of ferment that is going on, the committee has received requests for *Health Practice Indices* from the health chairmen of 53 business and professional women's clubs in 26 states, following its mention as a useful tool in the club women's national magazine *Independent Woman*. These requests were fully answered and referred to the state health department, as well. This is an interesting illustration of the use of information service and the *Indices* as an introduction to education about the broader aspects of community health development.

Local Health Units, Haven Emerson, M.D., Chairman

During the current year the soil prepared through the Princeton Conference for local health units has been continuously cultivated by the National Advisory Committee on Local Health Units of the National Health Council. The Council is meshing its program for encouraging the development of local health councils with that of extending health services through local initiative and support. The subcommittee is an integral part of this program in several ways: its chairman serves as the Association representative on this committee; a grant to the Association from the W. K. Kellogg Foundation has enabled it to share in large measure in the financial support of the program; the committee's research assistant serves as the secretary of the National Advisory Committee.

Important events of the year have been the two regional conferences, each covering five states, held in Indiana in April and in Salt Lake City in October. With teams of professional and lay persons interested in community health service, selected by the state health officers, these have served to clarify both the general problems and the specific ones of the separate states, and have given tremendous support to the local health unit program. It is perhaps worth noting that a general citizen understanding of the significance of local health services has no little influence on recruiting young persons to enter the public health field.

The extent to which many of the Princeton agencies have identified themselves with this program has more than justified the Princeton Conference. The National Grange, American Social Hygiene Association, National Society for Prevention of Blindness, National Organization for Public Health Nursing, National Society for Crippled Children and Adults, and the National Tuberculosis Association have each passed reso-

* Report of the Chairman of the Committee to the Governing Council, November 8, 1948.

lutions carrying out the intent of the Princeton resolutions. The National Congress of Parents and Teachers sponsored the National Health Services Act of 1948, and will work for it in the 81st Congress. Both the Lions International and the National Tuberculosis Association devoted a half day of their recent annual meetings to local health units.

Medical Care, Joseph W. Mountin, M.D., Chairman

The statement on "Coördination of Hospitals and Health Departments," prepared by a joint committee with the American Hospital Association, was approved by both associations and published in the May, 1948, issue of the *American Journal of Public Health.* The American Hospital Association has distributed reprints of this official statement of policy to all of its member institutions.

The Joint Committee on Chronic Disease of the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association is now discussing plans for the establishment of a broadly representative national commission to make a comprehensive study of chronic illness.

The Maryland Medical Care Program, a study by the staff of the Subcommittee on Medical Care, was published in March, 1948, and distributed to more than 2,500 individuals, including state and local health department personnel, officials of state medical societies, and members of the public welfare profession.

The staff is currently engaged in a field study of general medical care programs administered by local health departments, with a view to publishing a compendium describing the main features of these programs. Also in progress is a field investigation of coördinated activities of local health departments and hospitals which are jointly housed.

A report on *Regionalization in New England,* has been widely circulated. This report gives a detailed account of the activities of the Bingham Associates Fund in promoting closer coördination of medical services on a regional basis.

Study groups are in process of formulating specific recommendations on: (1) The role of voluntary plans in a national medical care program; (2) Intergovernmental relationships in a national medical care program, in collaboration with the Subcommittee on State and Local Health Administration of the C.A.P.; (3) Methods of improving the quality of medical care; (4) The regionalization of hospital and other medical services; (5) The use of auxiliary personnel in dental care programs; and (6) The development of programs for the control of specific chronic diseases.

The subcommittee has continued to prepare medical care bibliographies for the use of health officers and other public health personnel. Additions to this series have included bibliographies on regionalization of medical services and on group medical practice.

The subcommittee has arranged for two sessions at the 76th Annual Meeting of the Association on "Improving the Quality of Medical Care" and "Medical Care Programs: Problems and Methods." It has also collaborated in the development of joint sessions with the Public Health Nursing, Industrial Hygiene, Dental Health, and Engineering Sections.

Evaluation of Administrative Practices, Haven Emerson, M.D., Chairman

The pertussis studies have been carried forward with the continued financial support of manufacturers of biologic products. The work has included experiments in which various cultures of *H. pertussis* and a few para-pertussis and bronchiseptica strains are compared with respect to their virulence and immunizing properties in mice. In addi-

tion, during the year more than 30 protection tests were carried out with sera and the necessary work done related to testing and maintaining a large stock of cultures.

The Study Group on Tuberculosis Control Procedures is collaborating with other authorities regarding a revision of the *Manual on Tuberculosis Case Finding,* previously published by the A.P.H.A. and the National Tuberculosis Association. The Study Group is also concerned with the place of BCG vaccination in a tuberculosis control program. This subject has been under careful study by the Division of Tuberculosis of the U.S.P.H.S. and a representative advisory group who have indicated that the use of BCG should be subjected to further experimental studies. The Study Group will give this matter further consideration as to recommendations that may be available to health officers who are interested.

The report of a five years' study on the use of multiple antigens is expected to be ready for publication before the end of the year.

Unfortunately, a revised Iodized Salt Bill, prepared by the Study Group on Endemic Goiter and sponsored by Congresswoman Frances P. Bolton, was rejected in Congressional Committee. The attention of the Study Group is now focused on state regulation of this measure.

Study and analysis of carrier control procedures in the various states has recently been completed by the Study Committee on Typhoid Fever. Recommended methods for discovery, examination, and control, as well as criteria for the cure of typhoid carriers will be included in the committee's report.

The Study Committee on Hemolytic Streptococcal Infections (which is the new name of the original Study Group on Scarlet Fever) held a two day conference on November 6 and 7 with a number of invited consultants in this field. The group reviewed the sections on rheumatic fever and acute hemolytic streptococcal infections in the Association's report *The Control of Communicable Diseases,* and submitted proposed changes to the Subcommittee on Communicable Disease Control of the Committee on Research and Standards, in charge of the revision of this report.

State and Local Health Administration, Ira V. Hiscock, Chairman

A re-study was made in California early this year at the request of the state. It is significant to observe that this rapidly growing, vigorous health department has made extensive use of the previous study and has adopted a large majority of the recommendations. It is interesting, too, to recognize that the study techniques can be reapplied with profit on a somewhat different level, that is, with regard to the finer details of administrative practice.

The major states of Massachusetts and Pennsylvania have been studied since last October. These studies are of unusual importance not only because of the size and complexity of the administrative problems but because of their general application to the heavily populated northeastern section of the United States. A practical method for the establishment of local health units in Massachusetts which would have the support of legislators and local health officers is being developed through a notable state committee.

The study in Pennsylvania has furnished unusual opportunity to explore new patterns of state studies. The Commonwealth of Pennsylvania provided $35,000 from federal funds toward the support of the study. This made it possible to secure qualified consultants in such fields as fiscal administration, personnel management, tuberculosis sanatorium administration, rheumatic fever control, and also to secure the benefits of group thinking of other agencies and

personnel, in local and state government, rural sociology, volunteer nursing, legislation, etc. The technique of institute group discussion was used, giving the participants opportunity to assist in the development of recommendations. At least one thousand copies of the report will be printed.

A short follow-up visit with a rapid review of a previous state study was made in Oklahoma. It was interesting to note that the majority of the recommendations of the 1938 study had been carried out. Many of the policies and the methods of operation clearly follow the survey. Visits were made by the Field Director to the states of Ohio and West Virginia for the specific purpose of discussing survey technique, of meeting with substantial groups of citizens to discuss basic needs of the health department, and to consult with the State Health Officer regarding changing policy of local health administration.

A significant local study was made in Kansas City, Mo., through coöperation of the field staff. This suvey, officially in charge of Community Surveys, Inc., was an attempt to study community organization as a whole in the fields of dependency, child care, health, recreation, culture, and adult education, particularly with regard to trust fund administration. The committee appreciates the opportunity to collaborate with Community Surveys, Inc., and believes that studies of this type are helpful in that they include all the related social sciences.

The Evaluation Project has made genuine progress. The efforts of this Project (now in its 28th year) to establish practical tools, to develop a better understanding of methods, and more firmly establish evaluation as an integral part of public health, are increasingly recognized in meetings with related groups, in published articles, and statements by competent public health authorities. Specific instances of the use of the *Schedule* in schools of public health and in field consultant services are a notable gain.

There appears to be a growing interest on the part of state health departments to accept responsibility for the use of the *Schedule* as a part of their normal evaluation process. Michigan graded schedules completed by 32 of its local units. As a by-product of the 61 schedules submitted from New York State, special statistical studies will be conducted which may present new factual evidence concerning the contrast of areas with and without organized public health services.

The *Evaluation Schedule* was expanded by the completion and release of the *Sanitation Evaluation Schedule* for use in the study and appraisal of community sanitation programs. Copies of the *Schedule* and a *Guide* to its use have been sent to all state health departments, and many city departments, to interested representatives of other fields of engineering and to schools of public health. In the opinion of the staff, the *Sanitation Schedule* represents an advance in the evaluation technique, particularly in the fact that the three basic areas—facilities, effort, and status —are more clearly defined than has been possible heretofore. Unfortunately funds are in sight only until the end of 1948 to provide field service by a qualified engineer in the development of this *Schedule*.

Additional expansion of the overall schedule by the preparation of a special schedule on Dental Health is now under way. Authorities in the field of mental health are interested in the development of a schedule on Mental Health. While these specialized schedules are to be used for experimental purposes, it is hoped that after sufficient field trial, certain items will be incorporated in the next revision of the overall schedule.

Accident Prevention, Donald B. Armstrong, M.D., Chairman

Representatives of the Subcommittee on Accident Prevention have continued active coöperation with the National Safety Council and other agencies in this field. They have been particularly active in the reorganization of the National Home Safety Conference.

In the programs on home safety at the annual meetings of the National Safety Council and the American Public Health Association, attention is given to the newer approaches to accident control, including their public health and epidemiological aspects, together with the emotional elements in accident proneness, and the motivative psychological factors in education for accident prevention.

The section on Accident Prevention in the revised *Evaluation Schedule* was featured in the Health Education Exhibit of the National Publicity Council at the Association Annual Meeting.

Public Health Nursing, Marie L. Johnson, R.N.

A statement on "Public Health and Bedside Home Nursing Services," approved by the Committee on Administrative Practice, was published in the January, 1948, *American Journal of Public Health*. This is an amplification of the statement prepared by the Committee on Nursing Administration in coöperation with a group of national and federal agencies interested in public health nursing. An outgrowth of the work of this group has been the organization of a committee of public health consultants representative of national and federal agencies to discuss and clarify common problems and to formulate and promote basic principles of organization and service.

It seems increasingly clear from the deliberations of various committees that there must be found suitable methods of integrating all public health nursing services in a community whether they be financed by funds from contributions or from taxes, as well as to find suitable administrative methods for pooling such funds.

A statement, entitled "Urgent Message to Employers of Public Health Nurses," which includes a suggested salary scale for field nurses, has been distributed to health officers, governors, mayors, chest executives, and others, by the National Organization for Public Health Nursing.

A study of costs in public health nursing has been under way since December, 1946. On the basis of material collected, a cost manual has been prepared and is now being tested in different types of agencies.

Staff Changes

Dr. Roscoe P. Kandle accepted appointment as Field Director on February 1, 1948, when the Association lost Dr. Carl E. Buck to the University of Michigan.

Summary

In summary, the committee on Administrative Practice can report two state studies, one resurvey, increasing active use of the *Evaluation Schedule* in ever-broadening and rather remarkable different ways, research to determine its validity, a new *Schedule* on Environmental Sanitation which it appears will get into use quickly without the long promotional period that was necessary with the parent *Schedule*, the Dental Schedule on the way, the nation-wide surge of action of voluntary agencies in the development of local health services now linked with the youthful and exuberant efforts of the National Health Council, real progress in administrative control problems of Hemolytic Streptococcal Infections, additional significant knowledge in pertussis immunizing agents. These are but a few of the efforts in many fields in which this committee is active and plans to carry

on its program for the coming year.

The committee would be remiss not to acknowledge the financial and moral support given to its work by The Commonwealth Fund, The Rockefeller Foundation, The W. K. Kellogg Foundation. the U. S. Public Health Service, and drug manufacturers.

WILTON L. HALVERSON, M.D.,
Chairman

Eligibility*

THE Committee on Eligibility recommends for election to Fellowship in the American Public Health Association the largest number of members to request this status since Fellowship was established in 1922. A total of 259 Fellowship applications were received this year, of which 252 passed the twelve Section Councils and the Executive Board (acting on unaffiliated applications), and 250 have been approved by the committee. The names of the applicants recommended for Fellowship by the Committee on Eligibility appear on the lists that have been distributed to members of the Governing Council.

This large number of applications is due in part to a statement appearing in several 1948 issues of the *American Journal of Public Health* setting forth in detail the requirements and privileges of Fellowship. Many members were under the impression that they must wait for an invitation before applying, and, although the published statement resulted in the submission of a few applications from persons who are not professionally qualified, on the whole the current list of applicants contains excellent candidates in the various branches of the profession. It is a wholesome indication of a desire to be of recognized professional standing.

It should be remembered that the By-laws state that "persons who have been members for at least two years and are of established professional standing shall be eligible for election as Fellows." Therefore any member who has been affiliated for at least two years who wishes to apply for Fellowship must be permitted to do so. The Section Councils and the Committee on Eligibility are the groups within the Association that must carefully examine the credentials of persons requesting Fellowship, and theirs is the very important responsibility of denying admittance to unqualified persons before the names are submitted to the Governing Council for final action. This year the Section Councils were warned to be particularly careful in screening the applicants in their Sections. The Eligibility Committee, in considering the applications that passed the Section Councils, measured each one against the six paragraphs in the By-laws defining persons of established professional standing, spending most of the day on this arduous task.

This large number of new Fellows will increase the total Fellowship to slightly over 2,100, or just under 19 per cent of the total membership. It is rather striking how closely the percentage of Fellows has remained at this level as the Association has grown.

The number of applicants for membership in the year ending August 30, 1948, that the committee approved for membership in the Association was 1,227. This is a few hundred less than the number requesting affiliation during the 1946–1947 period. It reflects to some extent the rise in membership dues and the low compensation levels of public health workers.

The Chairman of the Executive Board has already reported to the Governing Council the membership situation in this first year of increased dues, but since the Committee on Eligibility has been interested in the reception that the dues increase received, being one of the groups which recommended that an increase be made, I wish to express for the members of my committee our pleasure in learning that the Associa-

* Report of the Chairman to the Governing Council, November 8, 1948.

tion's membership income as of August 31, 1948, is $15,000 higher than on the same date in 1947, as a result of the extra dues received from members and Fellows this year. This added income has enabled the Association to enlarge the *Journal*, to publish a *Year Book* once more, and to bring out other occasional dividends in the form of supplements to the *Journal*.

Steps are being taken to revise the Constitution and By-laws at this Annual Meeting to permit members to vote for the elective members of the Governing Council, and to have these elections take place by mail, thus offering to every member and Fellow of the Association the opportunity to vote for these important offices. It is my own opinion, in which I believe a majority of Fellows agree, that a broader base for voting franchise is indicated. The A.P.H.A. has an enviable record of democratic participation which should be maintained.

Another matter that is moving forward is the recommendation which the Committee on Eligibility made at its 1946 and 1947 meetings, namely that special consideration be given to liberalizing the policy in effect for cancelling the dues of members of long standing. The Committee on Constitution and By-laws has submitted for approval at this meeting an amendment that would provide for dues exemption of persons who have retired from active duty and who have been affiliated with the Association for thirty years. In addition to this provision, the previous arrangement whereby persons with forty years of membership automatically stop paying dues and receive a special certificate will be continued.

No statement on membership in the Association is complete without mentioning the total number of members, which was 11,531 on September 1 compared with 11,382 on September 1 of last year. A notable increase in new members has taken place in prospect of a new Section on Medical Care. The best membership promotion comes from the word of mouth invitations that members and Fellows express from day to day. The A.P.H.A. is fortunate in having many loyal supporters whose help is much appreciated.

The record of new Fellowship applications is not the only record to be made this year. A total of 164 members and Fellows have applied for Life Membership in the Association, and their names have also been approved by the committee and appear on the list furnished to all members of the Governing Council. This large number of applicants is a result of the offer that was broadcast to all members and Fellows last year enabling anyone interested to apply for Life Membership at the rate of $100 before the new rate of $200 went into effect on January 1. Even at the present rate of $200, Life Membership is a bargain, especially for Fellows, who receive a 6 per cent yield on the investment for the first 17 years, after which it costs them nothing for life.

Applications for Affiliated Society status have been received from the Minnesota Public Health Conference and the Washington State Public Health Association, and the committee recommends that they be accepted. If these organizations are added to the roster of state health associations affiliated with the Association, the total of such organizations will be 29. Correspondence is constantly under way with other state associations interested in such affiliation. In order to be eligible for election, at least half of the active members of the society must be members or Fellows of the A.P.H.A. and the society must show evidence of being a going concern. It has been apparent over the years that the membership provision has prevented certain states from qualifying, but we suggest no change.

Both the Southern Branch and the Western Branch of the A.P.H.A. have adopted revised constitutions this year and the Committee on Eligibility has approved both constitutions as conforming to the standards that have been set up.

Careful attention was given by the committee this morning to the possibility of adding to the Honorary Fellowship list, and the names of Brock Chisholm, M.D., Karl Evang, M.D., and V. Mary Crosse, O.B.E., MD., are hereby presented for the consideration of the Governing Council.

VLADO A. GETTING, M.D., State Department of Health, Boston, Mass., *Chairman*

Professional Education*

IN reviewing the activities and interests of the Committee on Professional Education during the past year, two main currents are apparent to the Chairman, currents emerging from the many smaller streams of detail which represent our daily tasks. The first current is that of increasing interchange of ideas between the C. P. E. on the one hand, the membership of the A.P.H.A. and public health workers at large on the other hand. The second current could be termed briefly: "The C. P. E. represents interests of a growing public health family." The last year has shown us ample evidence that there are newer members in our family who require the same assistance, encouragement and recognition the old established ones have received in the past.

In the light of these two trends, I would like to examine with you the committee's record since last October. One new member was appointed by the Executive Board for a three year term. He is Roy J. Morton, formerly of Vanderbilt University, now at the Oak Ridge National Laboratory. Mr. Morton replaces Ralph Tarbett who had served the C. P. E. faithfully since its beginnings and who died on January 25, 1948. The Executive Board reappointed three members for three year terms: Drs. W. P. Shepard, Gaylord W. Anderson and W. W. Bauer. Since the 1947 Annual Meeting, the committee met once on March 22, 1948, in New York.

In his last Report to the Governing Council, the Chairman of the committee discussed briefly, the divergent views on the training of the various administrators of specialized health activities. Some advocate that maternal and child hygiene, mental hygiene, and cancer control administrators fulfil the various clinical specialty board requirements, while others believe a *reasonable* amount of clinical experience is important but that public health training should be the principal requirement. The Committee on Professional Education favors the second solution and has, during the past year, discharged the subcommittees dealing with the educational qualifications of Maternal and Child Hygiene, Mental Hygiene, and Cancer Control Administrators. In place of their individual reports, a new combined Report on Educational Qualifications of Medical Administrators of Specialized Health Activities is in preparation which will reflect the committee's thinking.

Other new reports in preparation are: Educational Qualifications of Personnel in Vital Statistics and Vital Records; Educational Qualifications of Industrial Hygienists; Educational Qualifications of Dental Hygienists; and Educational Qualifications of Public Health Veterinarians (for which last report, a new subcommittee was appointed during the year). The reports to be prepared for dental hygienists and public health veterinarians are evidence of both currents mentioned at the outset: extending the committee's attention to a growing public health family and increasing the lines of contact between the C. P. E. and the newer members of this family which now turns to the C. P. E. for the type of guidance it has given to old established groups for some time.

The establishment of the Subcommittee on Educational Qualifications of Dental Hygienists also represents part of another development. In establish-

* Report of the Chairman of the Committee to the Governing Council, November 8, 1948.

ing desirable educational qualifications for various groups of public health workers, the C. P. E. used to limit itself almost exclusively to professional groups which require postgraduate training in order to be fully qualified for their work. The Report on Educational Qualifications of Sanitarians which was published in Proposed Form in the July, 1948, *Journal* and which is before the Governing Council for approval, as well as the Report on Dental Hygienists in preparation, deal with workers who rarely have a college degree. In this instance, the unwritten practice of the committee was abandoned since these groups had turned for guidance to the C. P. E. which by now occupies an authoritative position in recommending educational qualifications in the public health field.

A second report before the Governing Council is that on Educational Qualifitions of Community Health Educators which was published in proposed form in the June issue of the *American Journal of Public Health.* Although the Report on Educational Qualifications of Health Educators is only five years old, a complete revision was urgently needed because of the tremendous advances and changes in concepts in this new and important field.

The Proposed Report was generally very well received. The eagerness with which it was expected is documented by numerous letters with some suggestions for minor changes and additions. The Referee, supported by the members of his subcommittee, has incorporated some of these changes into the Proposed Report; the amended version which will probably be approved by the C. P. E. is before the Governing Council. This again is evidence of the democratic interchange of ideas between the committee and those in the field. In this connection it may be well to bear in mind that each Proposed Report is the result of the thinking processes of many minds.

During the past year, 6,600 reprints of the various reports of the Committee on Professional Education were distributed—34,600 inclusive of the *Journal* distribution.

The Executive Board, during the year, approved the appointment of Dr. W. P. Shepard (Dr. Atwater, alternate) Dr. Richard F. Boyd and Dr. V. A. Van Volkenburgh as representatives of the American Public Health Association to the Organizing Committee of the Specialty Board in Preventive Medicine and Public Health. Developments in this direction have been rapid and although this is no longer what might be termed "a C. P. E. affair," the Chairman would like to report briefly on the developments regarding the Specialty Board since the C. P. E. had a strong influence on the events. The Organizing Committee with representatives of the A.P.H.A., the A.M.A., the Association of Schools of Public Health, the Southern Medical Association, and the Canadian Medical Association formally organized in May, 1948, and was incorporated in July, 1948. The by-laws have been approved and the next important step for the Incorporated Board is that of application to the Advisory Board for Medical Specialties. Until this step is taken, applications from possible candidates cannot be acted upon. The Interim Board, formed by the Army, Navy, and U. S. Public Health Service, is awaiting the full functioning of the American Board of Preventive Medicine and Public Health, Inc., and is therefore not examining candidates although it has received a good number of applications from officers in the Services. There is a possibility that our Merit System Service will be called upon to construct written examinations for the new Board.

The next important function of the Committee on Professional Education in connection with the Specialty Board is the establishment of Criteria for the approval or accreditation of residency

experience which would parallel the Criteria for the approval of interneships and residencies established by the A.M.A. The Subcommittee on Field Training, which prepared the original report will submit its recommendations to the Committee on Professional Education.

The Executive Board approved amendments of the accreditation Criteria and granted accreditation to the following universities for the academic year 1948–1949. For the M.P.H. degree: California, Columbia, Harvard, Johns Hopkins, Michigan, Minnesota, North Carolina, Toronto, Tulane, and Yale. For the Dr. P.H. degree: California, Columbia, Harvard, Johns Hopkins, Michigan, North Carolina, Yale. This is the second year Tulane is accredited. Vanderbilt University has discontinued its School of Public Health. This year accreditation was granted to most institutions on the basis of written questionnaires since the committee feels that it is unnecessary to visit each school each year. A summary of the data prepared by Professor Winslow, the Consultant on Accreditation, reveals that the size of the effective budgets and the size of the faculties have generally shown an increase over the previous year. In accordance with this development, the committee may recommend that the Criteria dealing with these requirements be made more stringent. This would provide a safeguard against applications for accreditation by inferior or borderline schools. Some hitherto unaccredited schools have recently expressed interest in accreditation.

The feasibility and desirability of accrediting Master's degrees in health education other than the M.P.H. in schools of public health or outside schools of public health poses an important and difficult problem which is at present being investigated by the committee. Accreditation of graduate engineering curricula is also within the committee's sphere of interest and the committee stands ready to coöperate with the Engineers' Council for Professional Development which has recently started to manifest interest in the accreditation of Graduate Engineering Degrees.

Another phase of the accreditation program is the accreditation of field training areas. The Governing Council on October 8, 1947, approved the Report on Field Training of Public Health Personnel proposed by the Committee on Professional Education. This report contains the following paragraph :" The committee has attempted . . . to establish certain standards which may serve as a guide in the development of field training areas. The committee recognized that these standards are, of necessity, provisional and in many instances reflect a lower quality of service than might be desired. On the other hand, it has been forced reluctantly to accept the fact that many field training areas in all parts of the United States do not attain even these minimum standards." Recognizing the fact that very few field training areas in the United States do come up to the standards of that report, the committee has authorized the drafting of a more realistic set of standards by its Subcommittee on Field Training. The subcommittee met this morning to draft such standards as well as standards for acceptable residency experience. The original three year grant for the accreditation program made available by the Commonwealth Fund is now almost exhausted and other financial resources will have to be found to secure the continuation of this important project. It is felt that this project, which was undertaken at the request of the Association of Schools of Public Health, has not only fulfilled the function of safeguarding a proper level of education for public health workers, but has materially assisted the existing schools in rounding out and improving their programs of instruction.

Another project which is of considerable interest to the program of the schools and of equal interest to the performance of public health administrators is a possible "Job Analysis of Health Officers' Positions" which has been of interest to the C. P. E. for some time. Many public health leaders feel that there is too much discrepancy between what the schools of public health teach and what the health officer actually does. How large a percentage of the curriculum of the schools is concerned with problems of business administration, public relations, community organization and personnel problems? Is it not much lower than the percentage of the health officer's working hours spent on these tasks? This and similar questions might be more reliably answered if the results of a job anaylsis were available. This project which lately was dormant, may be closer to realization because of the active interest of one of our Fellows who was stimulated by the *Journal* editorial on the "Science and Art of Health Administrators" in which this problem was mentioned. Our reader made some practical suggestions for a possible solution—another example that the committee is not and should not be a self-sufficient body.

Much interchange of ideas and actual working relationships is in evidence between the Subcommittee on Salary Study, the U. S. Public Health Service, the State and Territorial Health Officers Association, and other professional groups. At the request of the Committee on Professional Education and the Association of State and Territorial Health Officers, the United States Public Health Service, during the past year, completed a study of salaries of state public health workers and a study of salaries of public health workers in local health units, covering population groups between 50,000 and 250,000. The Subcommittee on Salary Study and the Central Office were helpful in planning and sponsoring the studies, mailing the questionnaires and distributing the completed product. The Clearing House on Public Health Salary Information enjoys the active interest and participation of our readers. The subcommittee is now in the process of working on salary recommendations and on the application for a possible research grant for the purpose of analysis of important basic data inherent in job specifications.

The Merit System Service is looking back on a most interesting and fruitful year. The principal new developments are: an annual service plan together with other arrangements aimed at making the Merit System Service self-supporting; increased promotion of standard examinations; and an increased scope of activity in the field consultation service.

The Annual Service Plan which was announced on July 1 has now been accepted by nine states. The plan provides for a broad and inclusive examination service made available on an annual fee basis to state and city health departments. The service includes the release to the state or city of any number of copies of the available standard examinations, scoring of the answer booklets, analysis of results, and certain other services of interest to merit systems and personnel administrators. The fee ranges from $750 to $4,000 annually and is based on the amount of total funds budgeted for public health. Standard and tailor-made examinations will continue to be released to states and cities not electing to come under the annual service program as well as other agencies.

The National Foundation for Infantile Paralysis Grant for the Field Consultation Service was continued for another year. The field consultant has rendered increasingly useful and appreciated services not only in interpreting the Merit System Service to health administrators in the field, but also in

rendering much needed and expert consultation to merit systems and the personnel management of health departments on problems of classification systems, salary scales, personnel recruitment and selection, and the application of merit system rules. As of October 15, 1948, 35 states, 8 cities or counties, 22 schools of public health nursing, 20 visiting nurse associations and 2 schools of sanitary engineering have used the examination services. During the past year, examinations for various professional groups were prepared for the U. S. Public Health Service and these were taken by over 500 candidates in the United States and Territories as well as those serving overseas. An increasing number of professional fields —keeping pace with the growing public health family—are being supplied with examinations.

Two of the newer members of our growing public health family have recently asked to be included among those for whom educational qualifications have been or are being established. These two new groups are the non-medical administrator in health agencies and the medical-social worker in health agencies. In both instances the suggestions came from the general membership outside the committee ranks, another evidence of the general interest which is being manifested for the committee's work.

I have stated that an increasing amount of interchange of ideas is noticeable between the C. P. E. and all public health workers, and I have illustrated with examples that the committee serves a growing number of professional interests. This is in keeping with an increase in the number of agencies and the expansion of programs demanding the services of an increasing number of professional skills. We all know, however, that supply and demand have not reached an equilibrium and the continuing personnel shortage is directly and indirectly of serious concern to us all.

There are various components to be considered in understanding this continuing problem and they can only be mentioned in passing: the increasing number of public health, medical care, and related agencies using trained personnel; continuing unfavorable salaries; limited capacity of the schools; failure on the part of the faculties to stimulate interest in the public health field among medical, engineering, and nursing students; last not least, ignorance and unawareness among legislators and the general public as to the services of public health agencies and the rôles of public health workers.

The Vocational Counseling and Placement Service continues to report a great discrepancy between the number of applicants and the number of openings on its register. Between March and October, 1948, 212 new openings were registered, but only 48 candidates. Since most of the new candidates are placed much more speedily than the openings are filled, the total openings on the register as of October 1 numbered 766 as against 91 available candidates; a proportion of 8:1. In the past year almost 400 office interviews were held. The Service continues to be the only central clearing house for openings and candidates in the public health field. At present there is no such central clearing house available in the welfare field, and the counselors hold frequent counseling interviews and some correspondence with persons in that field also.

There have been frequent expressions of appreciation for the Counseling and direct placement services on the part of the many persons who come and write to the Association for guidance and advice as well as from employers and candidates. Recruitment on a small scale is of course carried on by the Service but in order to make a dent in the personnel shortage a much more comprehensive program will have to be followed.

The following figures may serve to illustrate the discrepancy between the vacancies in the field and the most important source of supply: the schools of public health. According to our annual tabulation on degrees and certificates granted, during the academic year 1947–1948, the number of M.P.H., D.P.H., Dr. P.H., and M.S.P.H. degrees granted in the United States and Canada by the accredited and a few unaccredited schools was 423. At the very same time there were 447 medical, public health engineering, health educator, and statistician vacancies in the state and local health departments of just 13 states, according to *Public Health Reports*.[1] One year's graduating class then would just about fill vacancies in 13 states *if* all the graduating students were free to go anywhere. However most of them are already employed. Also, such an estimate does not take account of ever-increasing job opportunities in new agencies, the replacements for retired and deceased persons, and for those changing over to other fields.

At the present time there are no funds available for a large-scale recruitment program, not even moderate sums for the printing and distributing of already prepared recruitment pamphlets. This situation should be of supreme concern to all public health workers. It might be well to quote in conclusion a few sentences from a statement in *Public Health Reports*[1] accompanying the tabulation on vacancies mentioned previously:

> Vacancies reported in 1947 were greater than in 1945 in 13 of the 19 categories of positions. Official health agencies will have to face in a realistic fashion, the continued scarcity of trained personnel indicated in these reports if the public is to receive the kind of public health service recommended by competent authorities as a necessary minimum for human welfare. Some of the reasons for this shortage —low salaries, lack of prestige, lack of job security are known. Possibly there are other less obvious reasons. It would seem that the time has come for all concerned to study thoughtfully the problem of recruitment and training of public health personnel with a view to taking definite action to correct the situation".

REFERENCE

1. *Pub. Health Rep.* 62:1668–1670, 1947.

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Calif., *Chairman*

Research and Standards*

EIGHTEEN years ago, Abel Wolman, Chairman, presented to you the first report of the then recently organized Committee on Research and Standards. In that report, he said:

"A member of an association of national scope may justly expect it to perform for him two major functions. It should provide for him an opportunity to exchange information with fellow workers, and should formulate standards of measurement in those fields where a uniform procedure would facilitate efficient action."

The Committee on Research and Standards is of the opinion that Dr. Wolman's words are still appropriate. It is, however, not a prime responsibility of this committee to provide an opportunity to exchange information with fellow public health workers. The pages of the *American Journal of Public Health* do that. So do the forums of each Sectional session. But even here we do contribute to a valuable exchange of ideas among our 8 subcommittees and the more than 100 members of committees and subcommittees. The strength of the Committee on Research and Standards lies not in having large funds available for research. Rather, strength comes from the pooled knowledge, experience, and interests of its committee members, each of whom has been selected with care.

A principal activity of this committee has been the evaluation, formulation, and preparation of standards of measurement "where a uniform procedure will facilitate efficient action." This does not imply the adoption of standards just for the sake of presenting a rigid formula for action.

* Report of the Chairman of the Committee to the Governing Council, November 8, 1948.

LABORATORY METHODS

Laboratory procedures are bound to reflect the preferences of the individual worker; they will be altered according to the equipment and materials available. However, for any laboratory where a reliable, efficient method must be selected promptly, it is desirable to have access to the proven and tried methods of experts. Likewise, when comparisons between results obtained in different laboratories are made, a common operating procedure must be followed. It is important that these accepted procedures should not be stagnating influences of authority but be constantly maintained as progressive stimuli. That is why the Association, for more than half a century, has been active in the compilation of successive volumes of laboratory methods, now well known as "Standard Methods."

The Ninth Edition of *Standard Methods for the Examination of Water and Sewage* was published late in 1946. Sales of the volume have been brisk so that by November 1, 1948, 6,000 copies had been sold. The results of good editing are shown by the only minor errors discovered in almost two years of use. Steps toward the Tenth Edition have already been taken. The Joint Editorial Board, you will recall, is now composed of representatives from the three responsible organizations: The American Water Works Association, the Federation of Sewage Works Associations, and the American Public Health Association. An organizational meeting of the Board has been held and plans have been prepared for publication, probably in 1951. Walter L. Mallmann, Ph.D., is Chairman of the Standard Methods Committee of the Association working toward the Tenth Edition.

I am also happy to report the publication of the Ninth Edition of *Standard Methods for the Examination of Dairy Products*. This volume went on sale in August, 1948. More than 1,600 copies have been sold already. The Standard Methods Committee under the Chairmanship of A. H. Robertson, Ph.D., which prepared this edition, estimates hopefully that it may not be necessary to publish another revision until about 1955.

You will note the term *Standard* in each of the preceding titles. Such a term is used advisedly. The basic methods comprising the volumes have been time-tested and have reached general acceptance on their merit. The term is also used because in the enforcement of public health laws in the respective fields involved, there must be accepted methods to guide judicial agents and to protect the purveyor. There are two other Association publications that do not warrant the term " Standards " because they apply to fields in which technics are rapidly changing with the advance of knowledge. These methods are not offered as official, completely standardized, rules of procedure. Rather they represent the methods found currently most effective by foremost workers in the subjects.

The first of these is *Diagnostic Procedures and Reagents*. It is now in its Second Edition. A manuscript for the Third Edition is in hand so that a Third Edition should be forthcoming in the near future. This revision, incorporating the numerous changes of the past several years, is being prepared by the Standard Methods Committee on Diagnostic Procedures and Reagents of the Coördinating Committee on Laboratory Methods, Ralph S. Muckenfuss, M.D., *Chairman*.

The second publication represents a venture into a new subject for Association publications. It is *Diagnostic Procedures in Virus and Rickettsial Diseases*, prepared by the Laboratory Section Standard Methods Committee on Diagnostic Procedures in Virus and Rickettsial Diseases, Thomas Francis, Jr., M.D., *Chairman*, and is the first devoted to bringing together accurate details of technics employed in studies of those agents. This volume went on sale in late July and has already reached a wide distribution in the more than 800 copies sold.

In addition, the word, standard, has been dropped from the reports on the Examination of Shellfish.

With the growth of the Association, the diversified interests of its Sections, and the increasing need for a variety of skills with which to approach a broad problem, the possibility exists that numerous studies upon different aspects of the same problem may be in progress without that interchange of information and assistance which could be of inestimable value to the investigating groups. Furthermore, a composite view of the accomplishments would not be readily available to the Association and volumes of standard or recommended procedures, unacceptable to other interested groups, might be offered as Association publications.

Last year your attention was called to a plan designed to afford wider sectional representation on committees preparing laboratory methods while at the same time assuring a more comprehensive review of proposed Association reports and coördination of activities of various sectional committees. The July, 1947, issue of the *American Journal of Public Health* carried the proposed plan. It is my pleasure to report that with the approval of the most vitally concerned Sections, the Coördinating Committee on Laboratory Methods has been established and organized as an integral part of the Committee on Research and Standards. It will be the responsibility of this committee to carry on the preparation of volumes of laboratory methods

already established under the earlier auspices of the Laboratory Section, and to establish subcommittees charged primarily with the duties of review and publication of new laboratory methods when the results of a sectional committee's work indicate the desirability of a published report at a level beyond the ordinary committee report. By this method any Section interested in the proposed volume will be afforded an opportunity for representation on the subcommittee preparing the report. This did not always take place when publications were prepared by a sectional committee. Moreover, by virtue of the closer coöperation between Sections, increased appreciation of mutual interests should be attained and publications will be expedited by furnishing much of the necessary review leading to approval for publication. At the same time it is the purpose of the Coördinating Committee to stimulate sectional committees to exploratory activities, and not to restrict or supersede committees which represent the active interests of the Section. There is firm conviction that this change will contribute valuably to progress.

Under the diplomatic chairmanship of Friend Lee Mickle, D.Sc., seven subcommittees of the Coördinating Committee have already been established and are at work.

One event of the past year is a source of deep regret; that is the curtailment of eleven years of important constructive work done by the Subcommittee on the Hygiene of Housing. Under the imaginative and enthusiastic Chairmanship of C.-E. A. Winslow, Dr. P.H., and the patient and constructive service of its Technical Secretary, Allan A. Twitchell, this committee has placed housing and health squarely before all categories of public health workers, town and city planners, architects and numerous citizens' committees. You are familiar with the earliest publications of the committee. *An Appraisal Method for Measuring the Quality of Housing*, published in two parts, has had wide circulation. Early this year the first of a three-part series on *Standards for Healthful Housing* was published. The title of the report is "Planning the Neighborhood." The second part on dwelling space and occupancy standards is in the final editorial state. In addition to preparation of these reports, the staff of the committee has worked with the U. S. Public Health Service in establishing a training course on appraisal technics at the Communicable Disease Center. Assistance has also been given to the Bureau of the Census in preparation of the 1950 Census of Housing. Although a shortage of funds must necessitate markedly lessened activity by this committee, continued support by the Milbank Memorial Fund should permit a carrying on of work until completion of the Standards for Healthful Housing series sometime in 1949. I am sorry to record this pessimistic report.

The most widely distributed publication of the Committee on Research and Standards is the report on the *Control of Communicable Diseases*. The Sixth Edition has been translated into several languages, its sales are numbered in six figures and the World Health Organization has exhibited a deep interest in its being available as an international contribution. The Subcommittee on Communicable Disease Control, again under the effective Chairmanship of Haven Emerson, M.D., has been preparing a Seventh Edition of the report. An indication of the enthusiasm with which this committee is attacking its task is the two day session held prior to the Annual Meeting for actual revision of a preliminary draft. The Seventh Edition should be ready for publication not later than 1950.

The 1947–1948 *Yearbook* carried in it a copy of a proposed technic for the bacteriological examination of food utensils. This had been prepared by the Subcom-

mittee on Food Utensils Sanitation of which Walter Tiedeman is *Chairman*. The Committee on Research and Standards accepted the report with the recommendation that it be adopted as an Association report. Your reply by means of a mail vote resulted in 90 votes for approval and no dissenting vote. The subcommittee is continuing its study of the sanitation of food utensils.

Your committee has been aware of the growing interest in various aspects of the sanitation of the atmosphere. For several years a Subcommittee for the Evaluation of Methods to Control Airborne Infections was active and rendered valuable reports on the current status in this field. Several committees of the Engineering, Epidemiology, Industrial Hygiene, and Laboratory Sections have also been active in studying other segments of the problem of air purification. In order to provide a coördination of all interests at an Association level our subcommittee was reorganized and renamed the "Subcommittee on Air Sanitation." Alexander D. Langmuir, M.D., the new *Chairman*, will have had his committee in session during this Annual Meeting for the purpose of charting a program for next year. Their purpose is in no way to supplant existing sectional committees; rather, it hopes to bring together their findings through sectional representatives on the new committee and to cover aspects needing study in which sectional committees may not be involved.

As you are probably aware, the Sixth Revision of the *International List of Causes of Death* is an accomplished fact. To this list of causes of death has been added a classification of diseases and injuries. Although the Association did not participate officially in the preparation of these lists, it was represented in that the Chairman of our Subcommittee for the Sixth Revision of the *International List of Causes of Death*, Edward S. Rogers, M.D., was a member of the United States Subcommittee working with the international committee in the preparation of the Sixth Revision. Since United States participation was through official agencies of the government, it would seem that our subcommittee can continue to serve a useful purpose by observing and experimenting with the use of the *Lists*. This should assure a means for carrying to the official agencies the conclusions and recommendations of the professional public health group. Our committee will discuss these functions at its meeting here this week.

During our meeting in March the following motion was adopted:

> "That the Subcommittee on Morbidity Registration and Statistics be requested to conduct appropriate research so as to establish a practical pattern of a county and city mechanism for morbidity reporting and for public health statistics which are based on a current, up-to-date knowledge of the characteristics and distribution of the population."

Lowell J. Reed, Ph.D., *Chairman* of the subcommittee, and his committee have been asked to assume this as one of their tasks.

The Committee on Research and Standards has also been represented on committees of the American Standards Association. I shall comment briefly on one. Public health interest in plumbing is quite generally accepted. Two members of the Association have been very actively representing the professional public health worker on the ASA committee preparing a plumbing code. This committee is known as A40. The American Public Health Association is one of the two sponsoring organizations. Preparation of a code that could satisfy all members of A40 proved extremely difficult. It is reported, however, that the text of the code has been agreed upon and now is ready for submission to the ASA for the next routine steps toward adoption. This code is awaited eagerly by people in the field.

For more than ten years the American Public Health Association has been a

participant, along with several other professional societies, in the preparation of a *Glossary of Water and Sewage Terms*. Originally we had two subcommittees active in this endeavor, but last year Sol Pincus was appointed to carry on the work of both. He reports completion of the editorial work on the *Glossary*. All that remains now before actual printing begins is a settlement of the financial arrangements under which the report will be published.

The Committee on Research and Standards is deeply appreciative of its associated committees which constitute the continuing activities under its auspices; it is also deeply aware of its responsibility for maintaining the high standards they have already set. Through their persistent endeavors we can look with confidence to the proper fulfillment of the committee's responsibilities in the formulation of standards of measurement for the Association.

On the other hand, the present committee has considered in detail the functions of Research and Standards in relation to research. There has been more progress in medical research during this century than in all previous history. Funds are more readily available and the public is more conscious of the need for investigation, both fundamental and applied. An association of this size must provide a constant urge to all divisions of public health to desire controlled scientific evaluation of their problems. It appears that a tendency has developed to consider this committee as a compiling and reviewing board with but a limited responsibility for the initiation and projection of research. If the editorial were the only function of the committee it might preferably give way to the Coördinating Committee. This concept is not in complete agreement with the objectives originally assigned to the committee nor with the desires of the present committee. The studies on the Hygiene of Housing are a striking example of progressive investigation under the committee's auspices. It is believed that other explorations should be initiated and prosecuted when it seems desirable for the advancement of the public health and the good of the Association. Although it is unlikely that the committee as such would undertake actual operation of a research project, there seems no reason why it should not if a suitable occasion should arise. There is a strong conviction that this committee should be active rather than passive in the development of research; that it should critically review research work in progress, suggest new research, attempt to interest suitable agencies in conducting work, and when desirable to seek support for it. Even the interpretation of what is meant by the "technical" branches of public health service is subject to a broad definition, for in many instances a frank approach by the experimental method will result in the testing of impressions and the establishment of data which cannot be obtained by philosophic agreement, compromised opinions, and the weight of authority. Just as the field of social sciences suffers from an unwillingness to apply scientific methods because of the scope of the problem, so may many problems in public health be delayed from reaching proper conclusions by reluctance to undertake sizable experiments. It is my belief that this committee should strive to overcome that defect and that this Association should lead the way in submitting important questions to actual test. The success of the "methods" activities has been due to their reliance upon the scientific evaluation of their procedures. Untested authority is valueless.

In order to clarify its situation the committee at its meeting of March 6 requested that the terms of reference be changed to state that it shall be responsible for initiating, conducting, pro-

moting, coördinating, and reviewing research and for the development of standards in the technical branches of public health. In this sense it will strive to encourage the undertaking of investigations by Sections or other interested groups; to suggest problems which might properly come within their purview; to bring together independent but interested investigators for cross-fertilization of ideas leading toward the solution of a problem. It should ask for suggestions through which this or other Association committees could contribute effectively to the advancement of knowledge. Research should not be limited to problems of immediate applicability; it should not be a china egg over which a misguided hen sits and clucks. At the same time we should not make a fetish of the word "research."

In order to gain momentum for this point of view, the committee has asked the different Sections to furnish a list of problems with which they may be engaged, to suggest problems which they would like to see implemented, and to invite members of sectional or other committees to tell the Committee on Research and Standards of their activities. It is believed that problems which may come to the committee can be referred to the Sections in whose channels of interest they may lie. It is also believed that professional assistance in the central office should be provided for the Committee on Research and Standards so as to review numerous committee reports, study technical projects of the Sections, and serve as technical adviser to committees meeting independently. It is also suggested that the Sections spend some time at this Annual Meeting in consideration of problems which should be submitted to investigation. In response to a questionnaire sent to each Section Secretary, eleven replies were received. Most of them stated that they were not engaged in any research although this may be a matter of interpretation. Four Sections made specific recommendations as to research. These will function as a nucleus for considerations by the Committee on Research and Standards at its meeting.

Several referees were appointed at our last meeting to study special problems that have arisen recently. Their reports and recommendations will be submitted at our meeting on Wednesday evening. You will be interested in knowing the subjects involved.

At our last meeting, in Atlantic City, you were presented with a proposed resolution calling for approval of the topical application of fluorides in the prevention of dental caries. At the time you thought the evidence available did not warrant definite action, and so this committee was asked to explore the subject. The evidence has been undergoing a thorough review since March, 1948, and a recommendation should be available for you following our meeting.

Four technical reports of various Sections were referred to referees to determine need for revision in view of technical changes which may have occurred since publication. One of them, *Recommended Practice for the Design, Equipment and Operation of Swimming Pools and Other Public Bathing Places,* is now being revised and will probably be considered during our meeting. If favorable action is taken you will probably be asked by mail ballot to vote on its acceptance as an Association report. It has already been accepted by the Conference of State Sanitary Engineers, cosponsor with the Association.

Another referee is considering an invitation to participate in an international committee for enteric phage typing. Still another is exploring the need for an authoritative manual for the guidance of administrators of isolation hospitals. Considerable data have already been collected describing policies now in use at isolation hospitals.

I have briefly reviewed the accom-

plishments and the burgeonings of the Committee on Research and Standards. It is my great pleasure to point to the obvious: the fact that they derive from the interest and efforts of many participants. I hope, too, that this statement will reflect the spirit of the committee and its desire to fulfil its assignments and to advance the field of scientific learning in public health.

THOMAS FRANCIS, JR., M.D.,
University of Michigan, Ann Arbor, Mich., *Chairman*

The Control of Typhoid Carriers*

Committee on Administrative Practice

WITH the elimination of waterborne, milk-borne, and other foodborne epidemics of typhoid fever, brought about by the continuous improvement in sanitation, the time has arrived in many areas when the residuum of typhoid fever is coming almost entirely from typhoid carriers. These carriers are those of the former victims of typhoid fever (one out of 30) who have never ceased to excrete the organisms.

Unfortunately, only a small number of these carriers are known to health agencies because at times in the past release cultures were either not obtained or were examined in laboratories whose methods failed to disclose the typhoid bacilli. In many states the estimated number of living typhoid carriers is 25 to 50 times the number of cases of typhoid fever reported in any single year. The chronic carriers left over from former days of high prevalence are, therefore, much more important sources of new cases than the current cases of the disease. This is particularly true since none of these carriers, except those on registers of health departments, know that they are a danger to their relatives and associates.

In those states where typhoid fever has been brought to a very low level, it is estimated that more than one-half of these carriers are over 60 years of age. It is evident that within a few years the typhoid fever arising from chronic carriers is destined to drop to even lower levels.

In the meanwhile, if those carriers who are producing our current cases can be discovered and put under supervision, a considerable contribution can be made in further reducing the number of cases.

In order to reduce the frequency of the chronic carrier as a source of new cases, the following procedures are recommended:

LIST OF CHRONIC CARRIERS

The health department of each state, territory, and province should maintain a list of all permanent typhoid carriers within its jurisdiction. The name of any person placed upon this list should not be removed from it until his death, or until he is found no longer to be a carrier under criteria outlined below. Each person on the list should be visited at least semiannually by a representative of the state, territorial, or provincial health department, or by a well trained person in a local health department. It should be recommended or required that all persons living in a household with a typhoid carrier, except those who have had typhoid fever, be given typhoid vaccine. The primary course of vaccine should consist of three subcutaneous doses of 0.5 ml., 0.5 ml., and 0.5 ml. at intervals of not less than a week apart, followed by annual stimulating doses of 0.5 ml. subcutaneously, or 0.1 ml. intracutaneously.

DEFINITION OF A CHRONIC CARRIER

A chronic typhoid carrier is a person who has not suffered from typhoid fever within the previous 12 months and who persistently discharges typhoid bacilli.

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* Report of Study Group.
STUDY GROUP ON TYPHOID FEVER OF THE SUBCOMMITTEE ON EVALUATION OF ADMINISTRATIVE PRACTICES.

Such carriers usually fall into the following three groups:

1. Convalescent cases of typhoid fever who continue to excrete typhoid bacilli for more than 12 months after onset.
2. Persons discovered in routine laboratory examinations or in epidemiological investigations to have a history of an illness resembling typhoid fever more than 1 year previously, or who have apparently been sources of other cases of typhoid fever, and who show stools positive for typhoid bacilli on two successive specimens.
3. Persons discovered accidentally to be harboring typhoid bacilli, even though there is no history of a presumptive typhoid illness, who continue to excrete typhoid bacilli for 2 months after discovery.

REGULATIONS REGARDING TYPHOID CARRIERS

Each state, territory, and province should have regulations prohibiting convalescent and chronic carriers from preparing food for the public, including particularly the handling of milk and milk products on farms or in milk plants. Unless the carrier is coöperative, intelligent, and can be depended upon to observe proper precautions he should not be allowed to care for the sick or for children. Each carrier should receive instructions or be asked to sign an agreement that he will not prepare food for any person except members of his own household who have been vaccinated against typhoid fever within 2 years; that he will wash his hands thoroughly with soap and water after each visit to the toilet; that in case of sickness or accident he will inform the physician, nurse, or other attendant that he is a typhoid carrier; and that he will inform the health department in advance of each change of address.

Typhoid carriers should be told that as long as they live up to their agreement, the fact that they are carriers will be kept confidential. In notifying a local health agency that a carrier has moved into its jurisdiction, this confidential relationship should be emphasized.

SEARCH FOR CARRIERS

1. *Convalescents*—A very productive method of discovering carriers is to follow current cases of typhoid fever through convalescence with periodic stool and urine cultures. Three to 5 per cent of convalescents will continue to excrete organisms for more than 12 months. Those who are shown by repeated laboratory examinations to be harboring typhoid bacilli and excreting them constantly or intermittently for more than 12 months, should be regarded as chronic carriers and placed upon the permanent carrier list. Less administrative effort is spent in finding carriers by release cultures than by any other method. Moreover, they can be kept under continuous supervision so that they will not be responsible for other persons becoming infected. Those who escape supervision often are found later to be a source of a case of typhoid fever.

2. *Epidemiological Investigations*—A most fruitful method of discovering chronic carriers is to uncover individuals responsible for current cases. In some instances, as simple a method as the routine culturing of adult members of the household will point to the carrier. Children and adolescents are unlikely to be carriers unless there is a history of illness resembling typhoid fever. Cases of the disease occur most frequently in a new person who is introduced into a household where there is a typhoid carrier, or when a typhoid carrier is introduced into a new household. It is often necessary to extend the investigation outside the immediate household to discover the carrier. Since a majority of typhoid carriers are over 50 years of age, carriers can be discovered occasionally by culturing the older members of households where a typhoid fever patient has been visiting recently, or by culturing the older persons among visitors who have recently been in the household of the ill person. Phage typing

can be used to verify that the carrier under suspicion is responsible for the case or outbreak.

3. *Examination of food handlers*—A less productive method of discovering chronic typhoid carriers is to examine stool specimens from persons working as food handlers. Such examinations should be selective and not routine. Hundreds of examinations can be made without finding a single carrier. It is wise to obtain stool specimens from food handlers who give a history simulating that of typhoid fever.

4. *Examination of bile from cholecystectomies*—The routine examination of bile from gall bladders removed at cholecystectomy can be used as an additional method of discovering carriers.

Since a large proportion of chronic carriers will show positive or partial agglutination tests, in areas where typhoid vaccine is seldom given, Widal reactions performed upon contacts of typhoid fever cases give useful information. Any persons who show a positive or partial reaction and who have no history of having received typhoid vaccine should be required to submit at least two stool specimens, if the first one fails to disclose typhoid bacilli. It must be borne in mind, however, that many carriers do not show agglutinins in significant titers. In areas where typhoid vaccine is widely given, the Widal is of little value, but agglutination tests with VI antigen have been found to be useful in pointing to typhoid carriers. There is no doubt as to the authenticity of specimens when blood samples are taken for agglutination tests.

All laboratory examinations for the discovery and control of carriers should be performed in the laboratory of the state, territory, or province, or in other laboratories approved for enteric examinations.

CRITERIA FOR THE CURE OF CARRIERS

It is unusual to find an exception to the rule that those individuals who continue to be carriers of typhoid bacilli for more than 12 months after the onset of typhoid fever will be carriers for the rest of their lives, unless the focus is removed by operation. No drug or antibiotic has yet been found which gives consistent results in eliminating typhoid bacilli from such foci. Only a few spontaneous cures without operation have been recorded, and any such reported instances should be thoroughly verified by appropriate laboratory tests before declaring the person cured.

CURE OF CARRIERS BY CHOLECYSTECTOMY

Since the focus in most instances is in the gall bladder, a high per cent of carriers can be cured by cholecystectomy. Such an operation should not be recommended or undertaken until it has been determined by examination of bile obtained by duodenal tube that the person is probably a gall bladder carrier. An examination of the contents of the gall bladder after operation will confirm that it is the focus. In most instances the gall bladder of a typhoid carrier will contain stones.

A typhoid carrier who has had his gall bladder removed will often continue to excrete typhoid bacilli for several days, and in some instances for 1 to 6 months after operation. When the stool specimens become negative, monthly specimens should be obtained until 12 months have elapsed since the first negative specimen. Final release should be dependent upon the failure to find typhoid bacilli in bile obtained by duodenal tube. and the examination of the next two stool specimens after giving magnesium sulphate through the duodenal tube. Before reporting the bile specimen as negative, the laboratory should verify that the specimen obtained really consists of bile.

The only deviation from this policy of requiring cholecystectomy for release should be for those persons placed upon

the carrier list in the past upon insufficient evidence. Some of those who were placed upon the list less than 1 year after onset may be found to have ceased to excrete organisms. In such instances a series of negative stools should be required which on laboratory examination are found not to contain typhoid bacilli. At least one or two of such stool specimens should be proved to be authentic by obtaining the specimen under supervision, or by giving lycopodium in the presence of a representative of the health department, followed by finding the lycopodium granules microscopically in the specimen submitted.

Carriers found to be harboring the bacilli in the kidney or other location may be cured if the focus can be removed. Criteria for cure depend upon examination of the appropriate secretion or excretion which formerly contained the organisms.

SALMONELLA CARRIERS

Similar procedures should be followed in handling persons found to be carriers of salmonella organisms. The salmonella species which produce a bacteremia will usually localize in the gall bladder. Those which produce only gastroenteritis may establish a focus elsewhere. Previous bile drainage is therefore quite important before operation is recommended.

SHIGELLA CARRIERS

Permanent carriers of Flexner and Sonne bacilli are very seldom encountered. Procedures similar to those recommended for typhoid carriers can be followed if a permanent shigella carrier is found. The focus would probably not be in the gall bladder.

Study Group on Typhoid Fever
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(This report was completed before aureomycin was found to be effective in treating patients and carriers. If the favorable results of aureomycin are corroborated by subsequent studies, procedures for carrier control may have to be substantially modified. ED.)

Coördinating Committee on Laboratory Methods*

Committee on Research and Standards

THIS is the first annual report that the Coördinating Committee on Laboratory Methods has been privileged to present. Since its establishment at the 1947 Annual Meeting of the Association it has functioned under the wing of the Committee on Research and Standards, one of the Standing Committees of the Association.

The Coördinating Committee on Laboratory Methods supersedes the Coördinating Committee on Standard Methods which, after its inception in 1933, had a long and creditable record of accomplishments under the auspices of the Laboratory Section, during most of this time under the very able leadership of Colonel Arthur Parker Hitchens. The objectives behind the establishment of the Coördinating Committee on Laboratory Methods were to establish a liaison between the work of the committees preparing laboratory methods and the several Sections of the Association having an interest in the use or the application of any of the various laboratory methods which the Association may foster, and to reduce the time elapsing between the preparation of manuscripts and their publication.

The personnel of the CCLM was selected by the Committee on Research and Standards and appointed as soon as possible after the 1947 Annual Meeting. The interests of all of the Sections having a stake in laboratory methods seem to be well represented in the personnel of the committee. An organization meeting of the new committee was held in the City of New York on March 6, 1948. At this meeting much time was devoted to discussion of the proper fields of activity for the committee and to organization of the work in relation to the Association and its Sections as well as to other interested groups.

It was a decision of the committee that CCLM should deal primarily with laboratory activities that are the concern of more than one Section of the Association. It was the consensus of the group that a committee working on a specific laboratory problem should have representation from all Sections of the Association concerned with the activity under consideration and that appointments to membership on the working laboratory committees should be made in consultation with the Section Council of the Section with which the prospective appointee is affiliated, as is provided in items 1.2 and 2.32 of the "Outline of Organization." It was visualized that some Sections may continue their own committees on methods or laboratory procedures which do not affect the interests of other Sections of the Association.

Up to the present time the CCLM has not established committees to function in some of the fields previously covered by the Coördinating Committee

* Report of the Chairman.
COÖRDINATING COMMITTEE ON STANDARD METHODS.
Organized 1921. Established 1933.
COÖRDINATING COMMITTEE ON LABORATORY METHODS.
Organized under the Committee on Research and Standards 1947.

on Standard Methods of the Laboratory Section. Examples are the biology of the laboratory animal and the field of examining germicides and antimicrobial agents. The committees named below have been established:

Standard Methods Committee for the Examination of Water and Sewage
Standard Methods Committee for the Examination of Milk and Milk Products (Including Frozen Desserts)
Committee for the Examination of Shellfish
Committee on Diagnostic Procedures and Reagents
Committee on Therapeutic and Diagnostic Biological Products
Committee on Virus and Rickettsial Diseases
Committee on Microbiological Examination of Foods

Below in this report are presented brief summaries of the activities of these seven committees for the short period of time they have existed under the auspices of CCLM.

Standard Methods Committee on Examination of Water and Sewage—

No report to the Coördinating Committee has been received from the chairman of the committee, Dr. Walter L. Mallmann. The most recent edition of *Standard Methods for the Examination of Water and Sewage* was the 9th, published in 1946. Both the CCLM and the chairman of the water and sewage committee were approached early in the year by the Association's representative on the joint committee of the three participating associations (the American Public Health Association, the American Water Works Association, and the Federation of Sewage Works Associations) with the request that the committee become immediately active in the preparation of material for a 10th Edition of the report. We were informed that the other two coöperating associations have done considerable work toward that edition and await the active participation of our committee. Consideration will be given to this matter at the meeting of CCLM that is to be held in connection with this Annual Meeting.

Standard Methods Committee for the Examination of Milk and Milk Products (Including Frozen Desserts)—

An excellent report of the work of this committee during the year has been submitted by the chairman, Dr. Archie H. Robertson. The 9th Edition of *Standard Methods for the Examination of Dairy Products* became available in August, 1948. Much improved in content and offering up-to-the-minute laboratory procedures for the examination of milk and a variety of milk products, the book is decidedly easier to use than were previous editions, because of the introduction of a simple cross-reference system. The reader will discover another innovation in that all of Chapter I of this volume is given over to a well arranged discussion of the applications and interpretations of the laboratory methods on milk and milk products that in previous editions were scattered throughout the text. This chapter is complete and well arranged, and contains much new material. Accordingly, this edition should become a valuable reference book for the health official or sanitarian in determining tests applicable to a given milk supply and in evaluating the laboratory findings. The chapters containing specific directions for laboratory procedures, now not interspersed with comments regarding interpretation, become much more readily intelligible to the laboratory worker.

The CCLM has authorized the Committee on Milk and Milk Products to publish Chapter II of the above mentioned volume as a paper-bound reprint. That chapter dealing with "Microbiological Methods for Milk and Cream" is the portion of the book most widely used in laboratories and by students and others. The reprint will be

available soon at a reasonable price.*

A subcommittee of the Committee on Milk and Milk Products has in manuscript a revision of Chapter II in a so-called "cook-book" style. This is an attempt to meet a demand from teachers of bacteriology for a simple laboratory guide at a low price. The little circular should play a part in bringing about uniformity of instruction among students, and the instruction they receive will be based on standard method procedures. The CCLM will soon be asked to approve this manuscript.

The Committee on Milk and Milk Products is already actively at work studying proposed revisions to improve even further the directions in a forthcoming 10th Edition of the milk and milk products methods report. Chief among the projects under study is a proposed modification or replacement of the currently recommended plate-count medium which is said to be simpler to prepare and which possibly may grow more colonies. Preparatory to revising the next edition the committee is having papers presented at this Annual Meeting on modified staining procedures for the direct microscopic method. Moreover, the committee is coöperating with the Association of Official Agricultural Chemists in the hope of securing full uniformity in the procedures for determining sediment, making phosphatase tests, and carrying on other tests in which both Associations are interested.

Committee on the Examination of Shellfish—

This committee last presented a report in the September, 1947, issue of the *American Journal of Public Health.* The chairman, James Gibbard, reports that during the year the only activity of the committee has been through correspondence between the chairman and the members. The committee seems to feel that the recommended procedures so far formulated are only a part of a much larger job, and it is looking forward to a publication dealing with the many laboratory aspects of the shellfish problem; namely, bacteriological procedures, chemical methods so far as they are applicable, the biology of the several species of shellfish, shellfish poisoning, enteric infections traceable to shellfish, sanitation of shucking and handling establishments, shellfish culture, and related topics.

Committee on Diagnostic Procedures and Reagents—

This committee, under the chairmanship of Dr. Ralph S. Muckenfuss, has been very active during the year in preparing the 3rd Edition of *Diagnostic Procedures and Reagents.* The earlier editions of this manual of technics for the laboratory diagnosis of the communicable diseases have had wide acceptance, and the 2nd Edition particularly has become a standard textbook in most diagnostic laboratories, large and small, throughout the territory served by the Association. The 3rd Edition is being revised to include a new chapter on Determinations of Levels of Antibiotics and Response to Bacteria by Caroline Falk, and one on Rh Testing by Dr. Philip Levine. In the main the same authors have been retained to revise and bring up to date the technic for the disease to which they were previously assigned although in a few instances the name of a new author of a chapter appears. The chapters on virus and rickettsial diseases, including those on Typhus and Rickettsial Fevers, Lymphogranuloma Venereum, and Rabies, were referred to the Committee on Virus and Rickettsial Diseases and appear in the manual published by that committee. The 3rd Edition of *Diagnostic Procedures and Reagents* is now in manuscript form and will very likely

* Since this report was presented, the reprint has been made available for 75 cents.

be submitted to the CCLM at this Annual Meeting for approval.

Committee on Therapeutic and Diagnostic Biological Products—

This is a new committee established to devote attention to diagnostic as well as to therapeutic biological products. It is not anticipated by the CCLM that it will be the intention of the new committee to prepare an extensive manual of tests to determine the efficacy of biological products in general. It seemed to the Coördinating Committee at its organization meeting that the functions of a committee dealing with the several aspects of therapeutic and diagnostic biological products would of necessity extend beyond the field of work of any one Section. It seemed wise to establish a committee in this field and request it after study to recommend to the CCLM what may be necessary in the way of activity in this direction by the Association. The chairman of the Committee on Diagnostic and Therapeutic Biologic Products, Dr. John T. Tripp, has reported to the CCLM that he has been active with the members of his committee in studying the field of activity of the new committee and that he is calling the group together for its first meeting. A report is expected to be forthcoming during this Annual Meeting of the Association.

Committee on Diagnostic Procedures in Virus and Rickettsial Diseases—

This committee, under the chairmanship of Dr. Thomas Francis, Jr., is to be complimented on bringing out in May of this year the first edition of *Diagnostic Procedures in Virus and Rickettsial Diseases,* a 347 page laboratory manual by a selected group of experts that is the first adequate compilation of laboratory procedures in its field. The wide sale that the book has already had is indication of the need for and the general acceptance of the volume. The preface states that no pretense is made that an exhaustive review of all possible technics has been produced or that the procedures have been standardized to the satisfaction of all laboratory workers. Instead, the methods are presented by the committee as those most generally found dependable by the active workers in this relatively new field of laboratory activity. It is the feeling of your Coördinating Committee that the Association and its members will be as proud of this publication, in the several editions through which it is likely to appear, as it has been of the widely accepted companion publications of the Association in the field of laboratory methods.

Committee for the Microbiological Examination of Foods—

Since the Committee on Microbiological Examination of Foods was selected by the CCLM as one of the subcommittees to function under its guidance, the activities of this committee, have been, according to the report of its chairman, Dr. Harry E. Goresline, largely devoted to consolidation of the work of previous years. Reprints of all previously developed methods that had been published from time to time were obtained and the methods described therein are being revised by the committee to get them in line with recent developments, to present them under a more uniform pattern, and to eliminate duplication among them. A preliminary set of Methods for the Microbiological Examination of Dehydrated Fruits and Vegetables has been developed during the year and presented to the CCLM for approval. The chairman has reported that the work of bringing these methods together was largely that of Matthew E. Highlands, a member of the committee. Work is also being done by the committee in the relatively new field of pre-cooked frozen foods. The committee is hopeful

that a manuscript of a manual for the microbiological examination of foods will before too long a time become an accomplished fact.

Aims of the Coördinating Committee—

As the Coördinating Committee on Laboratory Methods has been functioning less than a year it is hoped that the Committee on Research and Standards, the members of the Association and the Section Councils of the several Sections will consider this as a progress report made too soon after the formation of the committee for much to have been accomplished, especially since only one meeting could be held for the purpose of organizing and apportioning work to subcommittees. The committee hopes to function so as to relieve the Committee on Research and Standards of a multiplicity of detail in respect to laboratory methods.

A major goal is the publication by the Association of the kind of laboratory methods that will continue to keep the American Public Health Association in the forefront of the public health laboratory field. To attain that goal close coöperation will be sought not only with the several Sections of the Association that have interests affected by the preparation or use of laboratory methods but also with other associations and organizations interested in the publication of laboratory methods. The Coördinating Committee on Laboratory Methods solicits assistance and suggestions from all sources to aid it in its important task.

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Standard Methods for the Examination of Dairy Products*

Committee on Research and Standards

YOUR Chairman is happy to report that copies of the Ninth Edition of *Standard Methods for the Examination of Dairy Products* became available late in August, 1948. The introduction of a simple cross-reference system for the thirteen chapters, and the carefully organized arrangement of the applications and interpretations of quality tests in Chapter 1, makes Standard Methods distinctively useful both to administrators and to laboratory workers.

By authorization of the Coördinating Committee on Laboratory Methods, Chapter 2, on Microbiological Methods for Milk and Cream, will be offered for sale as a paper-bound reprint.† While administrators, laboratory chiefs, heads of college departments and libraries will want copies of the complete edition, many workers actually engaged in the examination of milk and cream samples by one or more of the four recognized routine procedures will want copies of the separate. Many teachers of dairy sanitation will want their students to have copies as a reminder after graduation that there is a Standard Methods and an American Public Health Association.

Dr. Samuel R. Damon, as Subcommittee Chairman, has nearly completed a so-called "cook-book" style of revision of Chapter 2. The intent is to provide teachers of bacteriology with a simple laboratory guide, which in turn will establish greater uniformity of instruction among students. Like the separate referred to above, reprints of this will be made available at a reasonable price to laboratory workers and to students taking college courses. The title of the report will be "Microbiological Examination of Milk and Cream, Laboratory Outline."

Because of the inconvenience of incorporating skim milk solids uniformly in the tryptone glucose beef extract agar plating medium and the tendency for these solids to precipitate when the medium is melted before pouring the plates, considerable thought has been focused on replacing the officially recognized medium with one which does not require the addition of skim milk or skim milk solids as such. Any substitute medium should provide equally as good growth of bacterial colonies as, if not better than, the present medium provides. The standard plate count obtained thereon should be essentially the same as that obtained on the accepted official standard medium. Reports of progress on this project will be made during the week.

New and/or modified staining procedures for milk films used in the direct microscopic method have been proposed. During the week, reports will be presented on these staining techniques.

The present practice of using a rinse method for determining the practical sterility of certain types of dairy equipment has been questioned. Studies are now in progress to determine whether or

* Report of the Committee to the Coördinating Committee on Laboratory Methods. First published report 1910.

† Now available for 75¢.

not the swab contact technique should not replace the rinsing procedure when testing milk cans for their sterility.

The method for Sediment in Milk, appearing in Chapter 9 in *Standard Methods,* is being considered favorably by the Association of Official Agricultural Chemists for inclusion in their *Book of Methods.*

Because of problems encountered with the melting of frozen dessert samples before removing representative test portions therefrom, a subcommittee, with Dr. Leon Buchbinder as chairman, is studying the details of an optional procedure for weighing test portions of the unmelted frozen dessert directly into dilution bottles.

The Association of Official Agricultural Chemists at their meeting in October, 1947, authorized the deletion of all previously recognized methods for the determination of residual phosphatase in pasteurized milk, and in place thereof voted to accept the Sanders-Sager method. A quotation from the February, 1948, issue of their *Journal,* page 82, follows:

> The following method was adopted as official, first action, for fluid milk and cream, cheddar type cheese, and soft uncured cheeses, and as tentative for other types of cheese, ice cream mix, sherbet mix, chocolate-flavored milks and skim milk, butter, sweet-cream and cultured buttermilks, fermented milks, goats' milk, cheese whey, and concentrated milks.

For years the New York State Department of Health method and one or more modifications of the New York City Department of Health method for phosphatase have been officially recognized by both the American Public Health Association and by the Association of Official Agricultural Chemists. The deleted procedures are well known and have been used successfully to correct faulty pasteurization practices as to fluid milk and cream. At the time of approving the manuscript for the Ninth Edition of *Standard Methods,* the Sanders-Sager method, originally developed for determining residual phosphatase in cheddar type cheese, was likewise in the manuscript stage. Although the original Sanders-Sager method requires many special modifications according to the product examined, it does have desirable features not possessed by any of the other methods. The Ninth Edition contains a description of this method as it applies to hard type cheese only.

As many of you know, we are working coöperatively with the Association of Official Agricultural Chemists to the extent that with their permission we are quoting from their *Book of Methods* many of their chemical procedures for analyzing dairy products. In this case, we cannot ignore their approval of the Sanders-Sager procedure with its wide application. In order to give an opportunity to compare the several methods, multilithed copies of the Sanders-Sager method may be obtained by addressing a request to the American Public Health Association.

Plans are now under way by the AOAC to enlist the help of collaborators in public health laboratories early in 1949 to compare the phosphatase method commonly used on fluid milk and/or cream in their laboratories with the Sanders-Sager method. Many laboratories in which the New York State Department of Health method and/or the New York City Department of Health Laboratory method are now used will want to take an active part in the collaborative work.

Dr. E. H. Parfitt reported that in 1944 representatives from The Dairy Industry Committee (Washington, D. C.), the International Association of Milk and Food Sanitarians, and the U. S. Public Health Service joined in inaugurating an industry and country-wide program to establish minimum sanitary standards for dairy equipment. The purpose was to stabilize the prac-

tices of the equipment manufacturers and at the same time to assure that an increasing proportion of the dairy equipment sold will be suitably designed. Although the acceptance of standards is voluntary, the accomplishments to date disclose almost unanimous acceptance by fabricators and buyers of equipment.

The coördinating program has served to guide buyers after the war in the replacement of old and worn equipment with new equipment acceptable in all markets for all types of dairy products, and to assure that standards in one city will be less apt to conflict with standards in another city. Much of the equipment is made of stainless steel, which offers potentially longer usage, and in turn creates the need for more care in designing the same.

Since 1944, standards have been promulgated for holding tanks, weigh and receiving tanks, pumps, homogenizers, and fittings used on milk pipe lines. In 1949 the committee hopes to complete its standards for transportation tanks, electric motors, can washers, heat exchangers of the plate, tube, and surface types, milk filters, milk pails and strainers, and milking machines.

The benefits derived by the dairy industry may serve as a guide for other branches of the food industry, because it has been demonstrated that proper design results in increasing ease with which equipment may be cleaned and kept in a sanitary condition.

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Methods for the Microbiological Examination of Foods*

Committee on Research and Standards

THE activity of the committee during the year has been largely that of consolidating the work of previous years. Reprints of all previously developed methods were obtained from the Association and these are being revised to bring them into line with more recent developments, obtain a more uniform pattern of presenting the methods, and to eliminate duplication. Agreement is being sought among members of the committee on the establishment of incubation temperatures of 32° C., 37° C., and 55° C. as standard for food products and the elimination of odd temperatures. This is for the purpose of obtaining more uniform results and to eliminate the necessity of laboratories maintaining a number of expensive incubators. Agreement is also being sought on a simplification of the types of bacteriological media to be used. It is believed that this will assist in obtaining more uniform agreement of results between laboratories and at the same time be a saving in time and expense.

A preliminary set of methods for the Microbiological Examination of Dehydrated Fruits and Vegetables has been developed during the year and is presented for approval. The work of bringing these methods together is largely that of Matthew E. Highlands of the committee.

It was hoped that methods on Precooked Frozen Foods and on Mayonnaise and Salad Dressings could be presented at this time, but considerable new preliminary work was necessary to produce satisfactory methods. The field of Pre-cooked Frozen Foods is a new one, and Dr. B. E. Proctor is conducting research on methods for use in that field and in testing their adaptability to plant operations and routine examination. Dr. F. W. Fabian is conducting research on methods and their application in the Mayonnaise and Salad Dressing field.

TENTATIVE METHODS FOR THE MICROBIOLOGICAL EXAMINATION OF DEHYDRATED FRUITS AND VEGETABLES

Microbiological examination of dehydrated and dried fruits and vegetables has received some attention in the past but there has been little evidence of standardization with regard to methods of analyses employed. Dried fruits have had rather more attention in relation to microbiological populations and their effects on the dried product, but there appears to be at the time of writing no standardized methods of examination for microbial populations in dried fruits.

Following World War I, Prescott [1, 2] studied the microflora of some twenty commercially dehydrated fruits and vegetables, using plain agar, glucose agar, and litmus agar, and reported that counts of bacteria varied from 60 to 2,000,000 per gram of sample while

* *Report of the Committee on Standard Methods for the Microbiological Examination of Foods of the Coördinating Committee on Laboratory Methods.*

COMMITTEE ON MICROBIOLOGICAL EXAMINATION OF FOODS.

Organized *1932. Formerly under* the Food and Nutrition Section. As such the following Reports were published: *Year Books*, 1935–1936, 1937–1938, 1941–1942, *A.J.P.H.*, June, 1943; August, 1945, April, 1946. *Year Book*, 1947–1948.

mold counts varied from 20 to 600. Types of organisms encountered were nonpathogenic. Later Prescott[3] and others investigated freshly dehydrated vegetables with similar results. Risbeth[4] examining dehydrated vegetables found that the majority of surviving organisms were Gram-positive spore forming rods and cocci. A few coliform types were also encountered and various fungi and yeasts were frequently found. Potential pathogens were rare. Counts for dehydrated vegetables varied from the order of 10^3 to 10^6 per gm. of sample and the organisms appeared to occur mainly on the surface of the vegetables. He indicated that the plate count is useful as a guide to the conditions of plant sanitation. Lochhead[5] indicates that as a result of researches an acceptable limit of 50,000 bacteria per gm. can be placed on dehydrated vegetables which have been subjected to blanching during processing. The Division of Bacteriology and Dairy Research, Department of Agriculture, Dominion of Canada,[6] in their published methods for bacteriological analysis of dehydrated vegetables recommended a total viable bacterial count, a thermophilic bacterial count, and a coliform bacterial determination.

The microbiological populations of dried and dehydrated fruits differ considerably from those of dehydrated vegetables in that yeasts and molds are the predominating organisms encountered with bacteria occurring in smaller numbers, Phaff.[7] In the case of dehydrated vegetables few yeasts should be encountered but bacteria and molds occur frequently. The presence of large numbers of organisms in any of these products indicates poor plant sanitation and handling, or substandard quality of the raw products prior to processing.

From reports in the literature it would appear that microbiological examination of dehydrated fruits and vegetables should include viable plate counts for bacteria, yeasts and molds, and a direct microscopic count to establish previous sanitary history. Thermophilic bacterial count should be included when the dehydrated material is intended as an ingredient in a product that might undergo thermophilic spoilage.

In this report the products to be examined are divided into two main groups as follows:

I. Dehydrated or Dried Vegetables
   A. Leafy Vegetables
   B. Root Vegetables
II. Dehydrated or Dried Fruits

COLLECTION AND HANDLING OF SAMPLES

Sample containers should be moisture-proof screw top glass jars, and prior to use should be cleaned, rinsed in distilled water, dried, and sterilized.

Samples of dried or dehydrated vegetables and fruits should be collected, using aseptic techniques. Care must be exercised to secure a representative sample. At least a 16 oz. sample should be taken from each lot or container of product under examination. If in small packages, a representative sample should be taken from several packages. Following selection, samples should be handled in such a manner that no contamination or other changes occur prior to examination, and they should be examined as soon as possible after taking.

MAKING VIABLE MICROBIAL COUNTS

I. *Dehydrated Vegetables*
   A. *Leafy Vegetables*
      1. Aseptically weigh 10 gm. of sample into a sterile screw top pint jar and add 190 ml. of sterile water. Replace screw cap and allow to rehydrate for 2 hours at room temperature, but not to exceed 70° F.
      2. At the end of this period shake thoroughly for 2 minutes.
      3. (a) Prepare suitable dilutions from the above 1:20 dilution according to the procedures given in *Standard Methods for the Examination of Dairy Products*,[8] and pour plates for total viable yeast and mold

counts, using Difco Malt Extract Agar containing 30 gm. of agar per liter and adjusted to a pH of 3.5.

(b) Incubate at 32° C. for 5 days observing the usual practices described in *Standard Methods for the Examinatino of Dairy Products,*[8] and report the counts as numbers of yeasts or molds per gm. of dehydrated product.

(c) Pour plates for total viable bacterial counts according to *Standard Methods for the Examination of Dairy Products,*[8] using Tryptone Glucose Extract Agar.

(d) Incubate plates for 48 hours at 32° C. and report the count as numbers of bacteria per gm. of dehydrated product.

B. *Root Vegetables*

Procedures for examination of dried or dehydrated root vegetables should follow those outlined for leafy vegetables except that it is desirable to permit the original dilution to stand overnight at refrigeration temperatures (32°–36° F.) to permit the sample to rehydrate before proceeding with the shaking of the sample and preparing subsequent dilutions.

II. *Dehydrated or Dried Fruits*

1. For prunes, apricots, peaches, and dates, etc., aseptically weigh 20 pieces of fruit into a sterile screw cap jar and add 200 ml. of sterile water. For raisins, currants, etc., weigh 100 pieces of fruit into similar jars and add 200 ml. of sterile water. Allow to stand 30 minutes at room temperature.
2. Shake for 2 minutes.
3. (a) Prepare suitable dilutions according to procedures given in *Standard Methods for the Examination of Dairy Products,*[8] and pour plates for total viable yeast and mold counts, using Difco Malt Extract Agar containing 30 gm. of agar per liter and adjusted to a pH of 3.5.

(b) Incubate at 32° C. for 5 days and report the counts as numbers of yeasts or molds per gm. of dehydrated fruit.

(c) Pour plates for total viable bacterial counts, using Tryptone Glucose Extract Agar.

(d) Incubate plates for 48 hours at 32° C. and report the count as numbers of bacteria per gm. of dehydrated fruit.

MAKING DIRECT MICROSCOPIC COUNTS

In order to establish the sanitary history of the samples of dehydrated fruits or vegetables, prepare slides for direct microscopic examination according to the method outlined in the *Standard Methods for the Examination of Dairy Products.*[8]

The liquid should be taken from the jar in which the sample was rehydrated, after settling in order to avoid debris, spread on the slide, stained and examined according to the above methods. Report as microörganisms observed per gm. of dehydrated product.

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Public Health Significance, Distribution and Control of Air-borne Pollens*

Engineering Section

IN October, 1947, at the Atlantic City meeting of the American Public Health Association, the Committee on Air Pollution of the Engineering Section presented its first report.[5] The substance of that report was a general review of *atmospheric* pollution and its control. Part of the report was given over to a discussion of pollen control, with a section on the current work being carried on in New York City with regard to ragweed reduction. The committee's entire report has been published in the June, 1948, issue of the *American Journal of Public Health.*

This committee, after consultation between its members, decided that a review of the subject of hay fever pollen control and a statement of pertinent information available at this time could well form the subject of this year's report.

The American Public Health Association offices had been asked for advice on this general subject. There was a considerable amount of interest among public health engineers and other public health officials as to whether an extended program in hay fever pollen control is justified.

OBJECTIVES OF THIS REVIEW

This report is prepared with these objectives in mind:

1. To determine the characteristics of pollen and the factors affecting its air-borne distribution.
2. To review the results of efforts to control hay fever pollens.
3. To provide a theoretical and actual basis for judging the likelihood of success of various pollen control methods.
4. In general, to provide a collection of present knowledge for administrative use by health officials and other individuals or agencies contemplating hay fever control programs.

PUBLIC HEALTH SIGNIFICANCE OF POLLENS

It has been stated[13] that from the standpoint of preventive medicine and public health, the illnesses caused by pollens have not received the attention they deserve. While pollinosis is not an infectious disease, nevertheless it is one which goes through epidemic periods. It is one of the few diseases for which one can predict with much precision, the time of occurrence, the period of duration, and the number of persons who will be affected in a single epidemic.

As hay fevers or pollinoses are not reportable, the number of individuals who are affected is not accurately known. Estimates of the number of persons who suffer from hay fever sometime during the year have been variously given. The U. S. Public Health Service[27] estimated that 2 to 3 per cent of the inhabitants of the area in the United States east of the Rocky Mountains where ragweed pollen is the principal cause of the disease, are affected. A survey conducted by the

* Report of the Committee.
COMMITTEE ON AIR POLLUTION.
Organized 1946. Published Report: *A J.P.H.* June, 1948

U. S. Public Health Service [18] (National Health Survey) during 1935–1936 disclosed that hay fever was 4th in prevalence in a list of chronic diseases, (14.3 cases per 1,000 persons among adults 20–64 years of age), exceeded only by (1) rheumatism and allied diseases, (2) cardiovascular-renal diseases, and (3) orthopedic impairments. Dr. Ralph V. Ellis in an article on pollinosis [13] estimates that from 2 to 4 per cent of the United States population suffer from hay fever. He reports a study based on personal histories taken at entrance to the University of Minnesota, which showed that 5 per cent of the students reported having hay fever. He points out that incidence of the disease is approximately equal among the sexes.

It is generally agreed that hay fever is not only common but has been steadily increasing from year to year. This is believed to be a real increase and not one due to better recognition or identification of the disease. R. P. Wodehouse [31] maintains that this increase is due primarily to the continuous increase of hay fever plants, given favorable environments by some of man's farming and urban land-use practices. The etiologic agent is a single living cell, pollen, and in each case, this agent releases a toxic or harmful substance which produces a characteristic effect only in such individuals as are susceptible to its action. The susceptibility is an acquired state and is termed an allergy.

Hay fever usually manifests itself as repeated sneezing and swelling, congestion and watery discharge from the nasal mucous membrane, starting relatively abruptly, and continuing over a prolonged period; the symptoms being produced whenever the individual inhales air with a sufficient concentration of certain pollens. Pollen entering the eyes produces a similar effect. Heredity plays an important part in causing individuals to be predisposed to develop hay fever at some time in their life. The disease develops at unpredictable ages, in babies as well as persons past 60. However, most persons who will develop the disease do so before the age of 30.

The mortality from hay fever is not known accurately but allergists agree that it is probably low. There is no recorded mortality from hay fever alone. However, when asthma supervenes, the mortality may be definitely increased. Dublin [7] concludes that on male risks with asthma, the mortality in the aggregate is 27.4 per cent in excess of that expected by the American Men's Table and 63.7 per cent in excess of the Basic Mortality Table. A majority of those who become susceptible to pollen, sooner or later develop asthma. Thommen [4] reports that pollen asthma occurs in about 35 per cent of all hay fever subjects in New York and vicinity, while Huber [21] reports 54 per cent for Chicago and vicinity. Ellis [13] points out that the incidence of asthma increases with the number of attacks of hay fever. Whereas the incidence of asthma is only 17 per cent among those with a history of 5 attacks or less, about two-thirds are so affected among those in whom the attacks have been repeated 25 or more seasons.

A majority of individuals suffering from pollinosis are susceptible to the excitants of 2 or more pollen groups. Ellis [13] states that without accurate information concerning atmospheric pollen pollution, it is impossible to make an accurate diagnosis of the causes of hay fever for the individual patient. Patients often react positively to skin tests with pollens to which they exhibit no clinical sensitivity. Obviously, the period of illness for the patient must coincide with the period of atmospheric pollution by the pollen which induces a skin reaction, before this has any diagnostic significance.

The amount of time lost and the losses due to reduced efficiency are not

easily estimated. However, it is easy to understand that these are very considerable. Such losses include an inability to get the proper amount of sleep, a production and aggravation of irritability and, particularly, a lack of interest in the usual activities, including the day's work. The eye symptoms may require the elimination of jobs in which the visual tasks are important.

It would appear rather conclusive from the above that the control of hay fever is easily justified as a worth while public health activity, *provided* an effective method is available which

a. Would reduce the amount of all hay fever pollens in the air below the number which would produce hay fever symptoms for all susceptible persons, over a considerable portion of the hay fever season, or
b. Would reduce the amount of all hay fever pollens to an amount which would be sufficient to prevent the disease in *most* sufferers for the duration of their symptoms, or
c. Would reduce the amount of *certain* individual pollens or groups of them to a concentration which would prevent the hay fevers of most sufferers.

As with many public health programs, it becomes an administrative decision as to whether the results to be obtained justify the effort and expenditure of funds necessary to achieve sufficient return. (1) The measurement of the seriousness of the problem, (2) the limitations involved, and (3) the level of accomplishment that could be expected in any one locality will be discussed in principle in the remainder of this report. Unfortunately, there are still considerable gaps in the information available on which such an administrative decision could be based, even if all the principles were known and were sound.

BOTANICAL CHARACTERISTICS OF POLLEN CAUSING HAY FEVER

Wodehouse in his book *Hay Fever Plants* [33] points out what makes some plants cause hay fever. He states that in order to cause hay fever, pollen must have certain characteristics. There are in summation: (a) buoyancy, (b) abundance, (c) allergenic toxicity.

If a plant is entirely entomophilous (pollinated chiefly by insects) it can be unconditionally excluded. If the plant is loosely entomophilous or is amphiphilous (pollinated both by insects and wind) it may be suspected, especially if it belongs to one of the hay fever plant families. But it is only among the truly anemophilous (pollinated chiefly by the agency of wind) that one should look for the important causes of hay fever. And by no means are all of these important, as they possess only one attribute—buoyant pollen. Most anemophilous plants produce or shed far too little pollen or the plants themselves are too scarce to be of any consequence in hay fever production.

The allergenic toxicity is of equal importance. This can be decided with considerable certainty by an actual clinical test with pollen-sensitive individuals. However, this character is found only in certain families of plants. The most important are listed by Wodehouse as follows:

Weeds and Grasses

Gramineae, the grasses
Compositae, ragweeds, mugworts, goldenrods, etc.
Chenopodiaceae, Russian thistle, saltbushes and chenopods
Amaranthaceae, pigweeds and waterhemps
Plantaginaceae, plantain
Polygonaceae, dock and rhubarb

Trees and Shrubs

Betulaceae, birches, alder and hazel
Fagaceae, beeches, oaks and chestnut
Ulmaceae, elms and hackberry
Moraceae, mulberries and paper mulberry
Juglandaceae, walnuts and hickories
Salicaceae, poplars and willows
Aceraceae, maples
Oleaceae, ashes, olive, and privet

Summing these up, Wodehouse in his article in *Natural History* [31] states: "There are other plants which contribute in small degree to the production

of hay fever, but the seven grasses, the two ragweeds and the related false ragweed and bur ragweed, the sagebrushes, mugworts and wormwoods and Russian thistle account for so nearly all of it in North America that without them hay fever could be little more than a local phenomenon of academic interest."

The "seven grasses" listed by him are:

Sweet vernal-grass
June grass
Orchard grass
Timothy
Red top
Bermuda grass
Johnson grass

The two ragweeds, of course, are the short, *Ambrosia elatior* or *Ambrosia artemisiifolia,* and the giant *Ambrosia trifida.*

Three hay fever seasons are distinguishable in the northeastern portion of the United States. They are as follows:

Early-spring hay fever—Caused by pollens discharged from elms, oaks, birches, and poplars which flower early while still leafless. In the South, the cause is pollen from pecan trees; in the cities of the Middle West and Rocky Mountain states, it is boxelder. Around Christmas time, the offender in Texas and Mexico is mountain cedar.

Early-summer hay fever—Sometimes known as the "rose cold." It is more prevalent than early spring hay fever. The cause is pollen from grasses (first five listed above). In the South and West, Bermuda and Johnson grasses are important causes.

Autumn hay fever—This is the one which involves over 80 per cent of all hay fever sufferers. The principal causes in the area east of the Rocky Mountains are the short and giant ragweeds. False ragweed and cocklebur are also involved. Sagebrushes, mugworts, and wormwoods are the offenders in the West.

Ragweeds owe their great abundance to their extraordinary ability to take possession of freshly disturbed or denuded soil and to the longevity of their seeds. Seeds of ragweed have been shown to remain viable after 40 years of burial in sand. Ragweeds are found profuse in vacant lots, waste places, dumps, roadside ditches, and on neglected farm land. The ragweed is an annual plant. It is spoken of by botanists as a "pioneer" plant. It will persist so long as the soil is disturbed but it cannot stand competition. In fact it normally flourishes only a few seasons if left alone and the late-weeds or intermediate group of plants take over the soil which the ragweeds have prepared for them. They, being winter-living plants, will have a good root system developed by spring so as to provide too much competition for the ragweeds.

Considerably later, what is called climax vegetation (association of plants best suited to the climate of the particular locality) will take over from the late-weeds or intermediate stage.

In the urban areas, ragweeds may be highly abundant, especially in the partially settled districts around towns and cities.

Wodehouse points out that the Indians were not bothered by ragweed hay fever, as only along streams and rivers where the undercutting of banks by the water disturbed the soil, could ragweed plants find suitable conditions for their growth. He theorizes that this may explain the huge amounts of pollen discharged by ragweeds as a device developed in an evolutionary way to provide a means of transfer of pollen between the widely scattered plants of the primeval forests.

Somewhat different is the cause of the increase of sagebrushes, mugworts, and wormwoods. These are bad-tasting plants, avoided by grazing animals as long as they can obtain other food, with the result that excessive grazing will remove the other plants leaving these weeds in possession.

Pollen granules are exceedingly minute, although they vary greatly in size, shape, and structure for different species of plants. Their size ranges from about

15 to 45 microns in diameter, although extreme cases may be found of pollens much larger or smaller than this. Some pollens are spherical or nearly so; others have very different shapes. Most have a sculptured outer coating, furrowed, or with pores, spines, and ridges in great variety; some have wings, bladders, or other appendages to assist their flight. Almost all are hygroscopic and individual grains vary considerably in size and weight according to their moisture content. The outer coating is highly resistant. Under favorable conditions it will last for thousands of years. The study of fossil pollens preserved in peat bogs gives considerable information as to climate conditions and periods of the past.

A pollen grain remains alive so long as it retains its ability to fertilize the plant egg cell. This may vary from a few hours to several months. However, the fertilizing ability has apparently nothing to do with the reaction of pollen on sensitive persons. If pollens are kept dry they retain their power to cause hay fever symptoms indefinitely. Pollen that is 20 or more years old is often found to be almost as active as ever in its allergenic properties.

The factors[28] which determine the stability of the allergenic component of a pollen are not fully established. However, it has been shown that storage without adequate drying speeds the rate of denaturation, and more particularly so if stored at relatively warm temperature. Extrinsic moisture (humidity, dew or rain) provides favorable conditions for fermentation and souring of the pollen due to the activity of contaminating microörganisms. Intrinsic moisture is necessary for enzymatic activity within the grain. These denaturing activities can be slowed, if not arrested, by storage at temperatures below freezing or by removal of the moisture to below the critical level for enzyme and microörganism activity.

DISCHARGE OF POLLEN

The amount of pollen discharged to the atmosphere in any given area will depend on a number of factors[3]:

1. Pollen output of the individual plant flower—This is a function of the species and size of plant. Erdtman[14] reports some counts of pollen granules from individual flowers of trees, ranging from 10,000 to 1,800,000 grains.

2. The size of the plant—More pollen will be discharged from larger plants. Numbers of pollen from certain trees could be from 2,000 to 12,500 millions of grains (whole tree).

3. Abundance of the plants—Obviously the greater the number of plants, the greater the total amount of pollen discharged.

4. Velocity of wind and time of day when velocity of wind is great—Pollination is heaviest in the early morning hours, which will produce more pollen discharge if the wind velocity is high at this time.

5. Sunshine—The amount of sunshine determines to a considerable extent the amount of pollen liberated from the pollen pods.

6. Relation of the date to the pollination period—As the pollination period continues, more plants come into pollination, more flowers open, etc.

7. Variation in temperature—This appears to have little effect on the transportation of pollens, other than in its relation to winds. However, low temperatures may delay and high temperatures hasten the growth and blossoming of plants. Early high temperatures may produce an earlier pollination season, particularly with tree and grass pollens. It does not affect the weed pollens nearly so much as they mature late in the summer. Unseasonably cool night temperatures may reduce the discharge of pollen, but when warmer weather returns, pollen production is resumed.

Frost is of importance in terminating the ragweed season in some northern states. However, in most of the ragweed areas, the pollination season is over several weeks before frost.

Pollination may be thought of as a tremendously wasteful process. So much pollen is given off by such trees as pines, firs, hemlocks, and spruces as to be seen floating like a cloud above the forests. Wind pollinated plants are characterized by flowers of simple structure. Such flowers are not showy, do not produce nectar, are not scented, and are of little or no interest to insects. The pollen produced may be enormously

more than that from insect-pollinated plants, though this is not always true. Such pollen is dry, light, and powdery.

DISSEMINATION OF POLLEN

Although exact information concerning the extent of dissemination or transportation by wind is governed by so many factors as to be relatively impossible of exact analysis, there is considerable evidence to show that pollens may be transported for very great distances.

Erdtman [14] quotes several studies which have shown large numbers of pollen grains caught on slides on ships from 20 to 30 miles off shore. He also presents many examples of small numbers of pollen grains being found hundreds of miles from their probable source. He records a journey across the Atlantic Ocean in which he exposed slides and caught pollen grains in mid-ocean and throughout the trip, some of which had to travel at least 600 miles.

Similar studies [22] carried out in airplanes, show that local pollens are found up to at least 4,000 ft. above the earth. Other pollens blown from considerable distances were found up to 5,000 feet.

Oren C. Durham,[10] one of the leading allergists in the United States, declares: "Even the absence of ragweeds in a given region cannot be accepted as proof of the virtues of that region as an effective refuge from ragweed pollen, for we know that pollen may be blown in toxic amounts for hundreds of miles." Balyeat [3] is more conservative in his statement: "The actual location of a majority of plants is not such an important factor if they are within range of 3 or 4 miles of a city, for from this distance the pollen will be brought in by means of the wind. This will hold true for all plants with the exception of a few whose pollen is very heavy."

Without question, the farther from the source of pollen one removes oneself, the greater the reduction of pollen numbers is likely to be, other things being equal. The reduction of pollen numbers in the atmosphere in general must vary inversely as at least the square of the distance from the point of production and probably is reduced at a much faster rate. Much of the pollen discharged falls to the ground near the plant. Rising air currents and strong winds moving long distances may void such a mathematical treatment, by carrying pollen for long distances.

Two meteorological conditions may seriously affect the amount of pollen remaining in the air. These are:

1. Precipitation — The rainfall during the growing season will determine to a considerable degree, the extent of growth and the number of plants which in turn will affect the amount of pollen produced.

During the pollination season, rainfall may tend to wash pollens out of the air but not necessarily as much as might be anticipated. Sustained rains are required. Balyeat [3] correlated air pollen counts with rainfall, sunshine, and wind velocity in three large cities of the Midwest states. He states that a slow rain over a period of 2–3 days accompanied by cloudy weather will practically clear the air of pollen.

2(a) The velocity of wind—This determines to a major degree how much pollen gets into the air, how far it will be carried, and the amount coming in contact with the hay fever sufferer. Patients complain of symptoms much more bitterly on windy days. Other factors being equal, the number of pollen grains found on a slide will be in direct ratio to the wind velocity.

2(b) The direction of the wind—This is of great importance in determining the concentration of pollen in the air. If it blows from an area where hay fever plants are abundant, the amount may be high. Cities near oceans or large lakes which are favored by breezes off these bodies of water during much of the time will have lower pollen concentrations than other cities, not so favored.

MEASUREMENT OF POLLENS IN THE ATMOSPHERE

Any method of quantitative determination of pollen content of air must take into consideration the considerable pat-

tern of variation which will be encountered.

Pollen concentrations will vary from place to place and from hour to hour in a given location. The factors governing the discharge of pollen and its dissemination by wind are so many and so variable that the errors of sampling can easily produce seriously misleading results if they are not taken into consideration.

Methods of measuring pollen in air fall into two general groups: volumetric methods and so-called gravity methods. Wodehouse[33] describes the following volumetric methods:

1. Erdtman Air Filtration Method—A small vacuum cleaner with its filter bag replaced by a plaited filter paper supported on a metal frame. The device has a means of measuring the volume of the filtered air.

2. Wells Air Centrifuge—This consists essentially of two concave discs set face to face. Air drawn into the lens-shaped cavity between the discs is projected by the rapid whirling of the lower disc directly onto a celluloid foil supported by a collar surrounding the slit. The amount of air sampled by the instrument in a given time interval can be readily determined.

3. Continuous pollen measurements[19] have been made by an apparatus with a clock-work mechanism which moves a slide across a jet of metered air which impinges upon it through a slit. The fluctuations in pollen density are recorded and can be measured by microscopic counting.

Various gravity methods have been described in the literature. In general, they are variations of methods of exposing a petrolatum—or glycerine-jelly coated miscroscope slide, held horizontally, with a sheltering device to protect it from rain and from the fall of large particles of dust and soot. A committee of the American Academy of Allergy has proposed the standardization of pollen sampling techniques and has published a preliminary report.[12] The details of the proposed standard technique are given in full in Appendix B of this report.

The counting procedure in all cases is by means of a microscope, usually at a magnification of 100 times. In addition to counting the pollen grains, an attempt is also made to identify the species or family of the plant from which the pollen originated.

Training and experience is of major assistance in making this identification. Some help may be obtained from available books on the subject, such as Wodehouse's *Pollen Grains*[30] or his article "Atmospheric Pollen."[32] He advises that final identification be made by actual comparison with known material. For this purpose, a reference collection of mounted specimens of pollen is necessary. Methods of collecting and preserving herbarium specimens are given by Bailey[1] and by Swingle.[26] Wodehouse describes the method of collecting and mounting the pollen.[33]

It is only rarely possible to tell the exact species, but it is generally possible to determine the genus and, almost always, the family. The species can usually be judged with only minor errors, by a knowledge of which plants are flowering at the time the pollen is caught.

None of the gravity methods provide a reliable index to the absolute amount of pollen in the air nor can they be expected to show a high degree of correlation with the volumetric methods. Some authors[23] have assumed that the number of pollen grains falling on a unit area of a slide in a given time interval depends upon only two factors, the abundance of pollen grains in the air and their rate of fall. By use of Stokes's law, or by direct measurement more recently,[11] they have determined the velocity of fall. This permits them to make a calculation of the number of pollen grains per unit of air volume (usually expressed as number per cubic yard) from the number of pollen grains found on a unit of area of the slide.

In addition to the questionableness of the assumptions, the original paper

setting up a table of velocities of fall contained a serious error in its calculations,* which went unchallenged for many years during which time the table was used as a basis for volumetric calculations in many published pollen surveys.

However, in addition, other factors undoubtedly enter into the relation between gravity and volumetric measurements to confound the person attempting to make such transfer calculations. These include:

1. The shape and sculpturing of the pollen grains.
2. The variability of the specific gravity of the grains, of the air temperature and of the humidity.
3. The velocity of the wind and the direction in which it impinges on the coated microscope slide.

It is generally accepted now[6, 12] that reports of gravity samples should include a record of the amount of pollen per unit of area of the exposed slide whether volumetric data are calculated or not.

Some effort has been made to determine the threshold concentration of pollens, i.e., the number per unit volume of air required to produce symptoms of pollinosis.

Feinberg and Steinberg,[15] in correlating their pollen counts with hay fever symptoms, using Scheppegrell's formula, found that their counts indicated that 25 grains of ragweed pollen per cu. yd. was sufficient to produce symptoms. However if a correction is made for Scheppegrell's error and an allowance for the spicules on the ragweed pollen grains, the number should be 196 grains per cu. yd. or about 3,920 inhaled per day (assuming that the individual engaged in average activity inhales about 20 cu. yd. of air per day).

A concentration less than this, states Durham[9] "can hardly be regarded as a severe hazard for the average ragweed-sensitive person."

Gottleib and Urbach[17] state more recently on this question, "There is no present method of determining the clinically significant concentration of pollen." They point out that individuals vary greatly in degree of sensitivity.

A considerable amount of information regarding the amount of pollen to be expected in the atmosphere of any particular locality can be gathered:

1. By securing the information given in the very numerous published surveys of hay fever plants. Most areas are covered by such published material, particularly as to the more common hay fever producing plants. Such surveys usually give the names of the plants, the time of flowering and some indication of the amounts of each different kind of pollen which can be expected in the air. Supplementary information can usually be obtained from the curator of local or nearby botanical collections.

2. By a field survey. In order to bring the published information up to date, to apply it to a particular locality or to test its reliability, it is usually desirable to make a field survey of possible hay fever plants. Such surveys need to be sufficiently comprehensive so that representativeness is assured. This survey also provides an opportunity of collecting samples of various pollens for purposes of identification of air-borne samples. Field surveys should be closely coördinated with air sampling.

There has now been accumulated a large number of published surveys, which give the distribution and pollination times of hay fever producing plants in various localities and regions of the United States.

Wodehouse lists a large number of them in his book, *Hayfever Plants*.[33] Gottlieb and Urbach[16] have also listed a large bibliography, classifying the areas covered, by individual states. These latter authors[17] have discussed the deficiencies of some field surveys, pointing out that plants should be identified by scientific rather than common names to avoid confusion; pollination dates should be given exactly rather than

* The diameter rather than the radius of the pollen grains was used in the Stokes's law substitutions

roughly by months; and that surveys need to be carefully done, particularly as to representativeness. Otherwise errors of sampling will invalidate the results.

One of the outstanding surveys of national scope has been that pursued by Durham.[8] With commercial assistance and with the coöperation of the weather bureaus of the United States, Canada, and Mexico, he has organized extensive studies of atmospheric pollen counts in many cities of various parts of North America. These studies were limited to late summer and fall seasons. Two tables of pollen counts in these various cities as compiled from those studies are given in Appendixes C and D at the end of this report. One illustrates the relation of ragweed pollen counts to airborne concentrations of other pollens. The other gives data on variation, seasonal length, and total ragweed counts. Both tables are given in count of pollen per 1.8 sq. cm. The samples were collected by various observers using the gravity method, and were counted by Durham.

Dr. Harry S. Bernton,[8] in discussing a similar tabulation of pollen counts, points out that because some cities have more pollen than others at a given time, does not signify that residents of those cities suffer in proportion. He brought out that there is a minimal requirement of pollen for intoxication and all in excess of this does not influence the disease proportionately.

It has become customary in many large cities for local newspapers to publish daily pollen counts, made by private laboratories or allergists. With standardization of counting and greater interest in the subject, health officials may well give consideration to promoting an official daily pollen count. This could be based on representative sampling made either by the local weather bureau, by the local public health laboratory, or by some other suitable official agency. Such a record will be very valuable in measuring the long-term effect of a pollen control program, in addition to its obvious diagnostic aid to the physician.

CONTROL OF AIR-BORNE POLLENS

The prevention or control of pollinosis falls into several categories:

I. Action by the individual to reduce severity of symptoms—

a. Avoidance of undue exposure to pollens by allergic or potentially-allergic individuals
b. Avoidance of foods which aggravate the sufferer's symptoms.
c. Avoiding excessive physical activity, fumes, dusts, and chilling of the body.

II. Preventive or immunizing treatment of allergic individuals—This includes sensitivity tests to determine the pollen or pollens which cause the hay fever and the correlation of beginning and duration of symptoms with atmospheric concentrations of pollens. This may be followed by:

a. Pre-seasonal treatment by gradually increasing parenteral injections of specific pollen extract.
b. Similar treatment given during the hay fever season.
c. Injections given at regular intervals throughout the year.

Pollen extract treatments have been given for over 35 years and the outlook has changed from one of "utter hopelessness to optimism."[9] The recent development of group antigens is providing for highly successful treatment and greatly simplified diagnosis and treatment.[13]

III. "Hay fever-free areas"—Many sufferers for years have been seeking hay fever relief by migration to so-called hay fever resorts. As the "Chamber of Commerce" influence and commercial interests are closely tied into the promotion of such resorts, it may be said that their efficacy is hardly ever as good as claimed. Besides this, even if relief is

found at a particular resort, the hay fever returns, when the allergic person is compelled to stay at home. Running away from hay fever is also time consuming and may be expensive. Psychologically it is not good. Few of us relish a vacation if the time and the place are selected in advance for us.

IV. Removal of pollens from the air—Personal respirators and various types of filter-masks designed to remove pollen from the air breathed, have also been tried with little success. They are very little help to the highly sensitive individual or the one affected by other factors in addition to pollen—such as cold air or certain foods. Those persons with asthma usually are not helped in this way. On the whole, none of these devices can be effective as the mesh of the filter cannot be made fine enough to keep out pollen without producing a device which is unwieldy and uncomfortable. Also many persons would need goggles in addition because eye symptoms of hay fever are caused by pollen entering the eyes directly.

One of the simplest ways to avoid much pollen is to remain indoors. In rooms where air is comparatively still, pollen content of the air is much lower than on the outside. However, if windows or doors are opened while a breeze is blowing, or if a fan is used to circulate the air, the pollen count will be near that of the exterior air.

Filters to remove pollen from indoor air are very feasible and effective. In general, air filters, precipitators, or washers which are effective against the dust will also protect against pollens.[25] Hay fever sufferers find that considerable temporary relief can be obtained by providing for filtration of air for their bedrooms. They find similar relief in "air-conditioned" buildings if the air-conditioning includes effective dust removal.

Unfortunately, the symptoms of hay fever reoccur when the allergic person returns to a pollen-laden atmosphere, and there are few persons who can remain in an air-conditioned atmosphere for any considerable portion of the hay fever season.

V. Theoretically, by preventing the discharge of pollen into the air, its effects could be avoided—Elimination of the plants which produce the offending pollens would accomplish this. Obviously, this is impractical for the tree pollens, and it is highly unlikely that any effective effort along this line can be carried out on the grasses, inasmuch as they form some of our most important agricultural crops.

The idea of elimination of the weed-produced pollen by destroying the weed plants has enjoyed a much wider support and it is undergoing a revival of interest now. Its appeal is primarily because most hay fevers are caused by weeds and also because weeds are otherwise highly objectionable.

Weeds have been defined as undesirable plants or just "plants in the wrong place." Weeds in the rural areas are likely to be costly hazards to crops and in some respects to cattle, as well as unsightly. In urban areas, they produce traffic hazards, fire hazards, and tell a tale of neglect and disregard of neatness and good municipal housekeeping.

In the past, municipal authorities have made heroic efforts, through legislation, enforcement, education, and direct weed removal service to suppress weed growth. These have taken the following lines:

1. Cutting of weeds before they reached a certain height.
2. Grubbing out or pulling weeds.

Attempts to enforce city laws requiring the property owner to cut or pull weeds have been very costly and relatively ineffective. Property owners could not be located and many could not be induced to do the work in time to prevent pollination or reseeding. Where the

work was done by the city and charged to the property owner, costly and delay-involving notification and hearing procedures are involved. Many cities still hold huge numbers of special tax liens for weed cutting which will never be collected because the property value now is less than the general taxes also due against it.

Centrally directed or municipal services of weed cutting or grubbing have been more successful in keeping weeds under control and to some extent in preventing reseeding, but have been very costly, need to be repeated frequently, and do not prevent pollination. The weeds grow back, pollinate and produce seeds in a few weeks' time. Also, where the soil is disturbed, the botanical progression of normal replacement of pioneer weeds, such as ragweed, by late-weeds is prevented.

Wodehouse [31] has advocated the planting of disturbed or denuded areas and intensive cultivation of all areas to prevent the ragweeds from taking over. He points out that city parks, properly kept gardens, well managed farms, and carefully planted roadside ditches and highway shoulders do not support hay fever weeds. As a long-term program, such activity will have many beneficial effects besides reducing the opportunities for ragweed growth.

Recently, there has been a revival of weed elimination enthusiasm. The cause has been the announcement in 1944 of a plant growth-regulating substance or hormone for use as an herbicide. At 10 p.p.m., more or less, plant hormones produce beneficial results. When this is increased to between 100 and 1,000 p.p.m., the new plant hormone, 2, 4-Dichlorophenoxyacetic acid (known more familiarly as 2, 4-D) stimulates abnormal growth which finally results in death of the plant. Under favorable conditions, 2, 4-D applied to foliage in the latter concentrations causes death of the entire deep root system. It is non-corrosive, non-irritating to the skin, non-explosive and apparently non-toxic to animals and man.

The action of 2, 4-D is highly selective. It attacks most broadleaf plants but there are exceptions. It does not affect most grasses. It appears to be most effective on young plants in periods of rapid growth; it acts slowly, requiring a month to produce killing action. It appears to be most effective when applied to plants growing in moist soil. The action progresses more rapidly in sun than in shade and its effectiveness is reduced when applied within 4 hours of a rain.

This is some of the knowledge gained of its general action.[20] Specifically, it has been investigated as to its effect on ragweed and related plants.[24]

Water sprays of 2, 4-D at 1,000 p.p.m. at sufficiently early stages of flower development were shown to be effective in preventing pollen shedding by ragweeds. If applied when the majority of plants had small racemes (flower stalks), by the 14th day, none of the involucres (covering of unexpanded flowers) had opened and no further flower development occurred. The plants, of course, did not produce seeds. By the 28th day, the tops of one-half of the smaller plants were dead and larger plants were dying back from the tips. Even when spraying was done as involucres were starting to open, no pollen was shed. Later spraying reduced pollen shedding but did not prevent it.

A number of city officials have experimented with the use of this compound as a weed killer. Many cities have started to use the material in more extensive programs. New York City organized an extensive ragweed control program starting in 1946, using 2, 4-D spraying. Details of this development can be found in the publication by Weinstein and Fletcher [29] which appeared in the *American Journal of Pub-*

lic Health and in the special report, prepared by Pincus, which is a part of Appendix A of this report.

Results of the New York City program as reported are: little or no new growth of ragweed in 1947 on areas sprayed in 1946, encouragement of growth of late-weeds and grasses where ragweed grew before, and possibly some effect on atmospheric ragweed pollen counts during the 1946 season. These were reported as "unusually low" that year. It is hoped that additional quantitative data on results will be forthcoming as this program and others continue.

LIKELIHOOD OF SUCCESS OF CONTROL PROGRAMS

There appears to be little doubt that hay fever sufferers are helped by the destruction or removal of hay fever plants within a few city blocks or a few hundred feet of them.

Up to this time, it has not been conclusively demonstrated that weed cutting or weed pulling, or chemical treatment to kill weeds, even if organized on a large scale, will lower appreciably the amount of pollen in the atmosphere of American cities. However, there now seems to be considerable evidence and good reason to believe that, under favorable geographical or meteorological conditions found in many communities, a well organized ragweed control program, using the herbicide 2, 4-D in addition to other measures such as seeding areas with competitive plants, will produce a large reduction of air-borne ragweed pollen, at a reasonable cost.

Such efforts are likely to be more successful where (1) the prevailing wind direction in the community is from areas relatively free of ragweed plants, or (2) the area that can be organized and controlled successfully is large. Just how large the control area must be, appears impossible to determine from presently available data. As more control programs are carried out along with atmospheric pollen counts, more data in this regard will become usable. It would appear that one need not be hopelessly pessimistic as to results, even though one[9] of the authorities in the field has declared as late as 1936, "The complete removal of every ragweed within the area of even our largest cities for a whole season could not measurably reduce the pollen contamination of the air in the business or residence portions of the city." The fact that more hay fever cases are found in suburban areas than in the central portions of the large cities,[33] and the definite evidence of considerable and steady reduction of pollen concentrations in air the farther one travels from its source would assure increasing reduction of pollen counts at the center, as the area of comparative freedom from ragweed is ever expanded.

Preliminary evidence now at hand indicates that the beneficial results of weed control, other than potential pollen reduction, will easily justify the effort and cost of centrally organized 2, 4-D spray programs, at least in the larger metropolitan centers. Any benefits accrued toward reducing the severity and prevalence of hay fever cases will thus be added gain, should they materialize. If the community is surrounded by areas of considerable ragweed, or if a prevailing wind carries ragweed into the area, no presently available control methods can be expected to bring about a reduction of air-borne ragweed pollens to concentrations below clinically significant amounts, except on days of low wind velocity or of winds of favorable direction.

In the special cases, where cities have large amounts of hay fever plants, while the surrounding area is relatively free of them, or where the prevailing winds are from such areas, the organized control of such plants by chemical treatment would seem to be very beneficial and, therefore, advisable.

In the rural areas where efforts over

large areas are much more difficult to organize, it appears that little success can be expected through the measures recently made available for air-borne pollen control. Probably this will be so until educational means have brought the advantages of and have motivated a high proportion of persons in such areas to carry on individual weed control.

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Appendix A

For the Report of the Committee on Air Pollution, Engineering Section, American Public Health Association, presented at the Association meeting held in Atlantic City, October, 1947, see *A.J.P.H.* June, 1948, pp. 761–769.

Appendix B

Pollen Counting

From the Preliminary Report of the National Pollen Survey Committee of the American Academy of Allergy on Proposed Standardization of Pollen Counting Techniques. J. Allergy 17:178–180 (May), 1946, by O. C. Durham, J. H. Black, J. Glaser, and M. Walzer.

1. *Essential equipment:*—

Standard sampling device.

Compound microscope (preferably binocular) with mechanical stage (preferably with graduated scales and verniers).

Glass slides, 25x75 mm. (1x3 inches), with frosted ends which may be marked with pencil thus rendering gummed labels unnecessary.

Cover glasses, 22x22 mm

Wooden slide boxes with covers, large size (25 slides) for storing slides and small size (3 slides) for carrying slides to and from laboratory and exposure site.

Soft petrolatum jelly: 75% U.S P. petrolatum, 25% U.S.P. mineral oil.

Dissecting needle.

Calberla's solution made up of 5 ml. of glycerin, 10 ml. of 95% alcohol, 15 ml. of distilled water and 2 drops of saturated aqueous solution of fuchsin. (Small tablets of basic fuchsin are prepared by Burroughs-Wellcome and Co.)

2. *Place and Time of Exposure*—The ideal location for the sampling apparatus is the center of an unobstructed roof of a tall, flat top building near the geographic center of a given community. The building chosen should not be immediately flanked by taller structures. If the roof is equipped with a parapet the top of the exposure apparatus should be 30 inches above the parapet. When for special reasons, sampling is carried on in an unusual location, a full description of the site and surroundings should be furnished. Porches and window ledges are not satisfactory sites for pollen sampling.

Slides should be exposed for periods of 24 hours, starting preferably in the morning at the same hour each day.

3. *Sampling Device*—The sampling apparatus approved and recommended as a standard by this committee, has been described and pictured in the *Journal of Allergy*, March, 1946, pages 80 and 81. Essentially it consists of two 9 inch, heavy polished, stainless steel disks set horizontally 3 inches apart and held with 3 struts. One inch above the center of the lower plane is a slide holder into which the slide fits snugly. The supporting rod of the apparatus, 30 inches long, rises from a tripod base equipped with holes so that it may be screwed to a solid platform. This apparatus may be ordered from Wilkens-Anderson Company, 111 North Canal Street, Chicago 6, Ill. (price $16.00), or it may be made according to the specification of the committee.

4. *Identification Technique*—Slides should be prepared with a very thin film of petrolatum jelly (rubbed out—not flowed on with heat). Preparation of slides should be carried out in a room free from air currents and dust particles.

Examination of slides and identification of allergenic particles may be carried out most effectively by staining with Calberla's solution. The larger dirt particles, soot and sand, should first be removed with a dissecting needle with the aid of a hand lens. A few drops of the stain are then placed directly on the slide. The amount used should be just sufficient to fill the space between the irregular oiled surface of the slide and the cover slip and will vary according to the quantity of debris on the slide. If the cover glass actually floats free, the excess stain may be removed with a blotter. The slide may usually be examined within 3 to 5 minutes after application of stain.

Identification and counting may be carried on without stain. Even when stain is used, only about half of the slide surface will be disturbed, leaving the remainder for observation of unstained granules.

The glycerin jelly method of slide preparation and counting as described by Wodehouse may be followed if preferred.

5. *Counting and Computation of Results*—For the sake of uniformity, it is advisable that counts be computed and recorded on the basis of the number of pollen grains (or spores) of each type or species found on 1 sq. cm. of

slide area. From this figure one may, if he so desires, estimate the pollen content per cubic yard of air by the use of conversion factors such as have been recommended by Durham and are now being studied by this Committee. For present purposes, however, a desirable degree of uniformity will be achieved by reporting all counts on the basis of 1 sq. cm. of slide area. Whether the 1 sq. cm. figures are supplemented by cubic yard estimates is optional with each observer.

For routine counting, low power should be used—usually a 10x objective with a 10x or 15x eyepiece. If no cover glass is used, a count is made of all pollen granules encountered in crossing the entire width of the slide (1 inch or 25 mm.). The slide is then shifted laterally and another complete crossing is made. This is repeated until 4 or more trips have been made.

The area covered on one trip across a slide depends on the actual width of the low-power field afforded by the optical combination which is being used. The width of field may be determined by reading the setting of the stage, shifting a given particle on the slide all the way from one side of the field to the other and reading again. The shift will amount to 1 mm., more or less. A number of trials should be made and the results should be averaged. If the field happens to be exactly 1 mm. then each trip across the slide will cover 25 sq. mm. Four trips will cover 1 sq. cm. If the cover-glass technique is used, the count is made across the width of the cover glass (22 mm.). If the optical field width is exactly 1 mm. each trip across the cover glass will cover 22 sq. mm. and 5 such counts will cover 110 sq. mm. or 1.1 sq. cm. From this figure, the count for the standard unit of 1 sq. cm. may be readily calculated. In the cover-glass technique, the whole area (4.84 sq. cm.) under the cover may be counted. Dividing by 4.84 gives the average number of pollen granules per sq. cm.

When there is little pollen in the air, the accuracy of the counts may be increased by counting several square cm. areas and reducing the total to the average per sq. cm.

When replacing shelters previously employed with the new standard instrument, workers are advised to run parallel counts using both shelters for one season in order to determine the equivalent values of the two instruments. With this information, one may convert readings taken in previous years to their equivalents with the new shelter. In this way, the value of accumulated data obtained by counts in previous years may be preserved.

Appendix C

Tabulation of the Summations of Daily Gravity Counts of Air-Borne Pollen in Certain Cities of North America, for Different Types of Plants, During the Late Summer and Fall Seasons (Condensed from Data Collected During 1933–1935) *

State	*City*	*Ragweed*	*Russ. This.*	*Chen. & Amar.*	*Grass*	*Sage*	*Comp.*	*Misc.*	*Total*
Ala.	Mobile	579	....	23	82	....	29	14	727
Ariz.	Phoenix	145	....	803	248	2	19	67	1,289
Ark.	Little Rock	2,245	....	70	82	....	7	119	2,523
Calif.	Los Angeles	144	....	102	50	8	2	82	388
	Sacramento	34	8	118	24	16	....	61	261
Colo.	Denver	1,949	1,083	880	87	515	33	49	4,596
D. C.	Washington	2,285	....	69	67	1	3	14	2,439
Fla.	Tampa	554	....	19	123	....	34	86	816
Ga.	Atlanta	3,053	....	57	69	5	27	25	3,236
Ida.	Boise	209	82	63	46	153	8	34	595
Ill.	Chicago	8,817	20	168	45	....	7	21	9,078
	Peoria	12,773	57	269	105	2	6	51	13,263
	Springfield	8,512	34	186	88	....	9	44	8,873
Ind.	Indianapolis	18,405	....	163	120	22	11	39	18,760
Kan.	Wichita	4,546	....	6,516	281	57	37	124	11,561
Ky.	Louisville	7,339	....	143	85	76	9	29	7,681
La.	New Orleans	3,183	....	50	128	....	329	24	3,714
Me.	Bar Harbor	426	....	3	5	....	8	2	444
	Eastport	280	....	8	12	....	5	22	327
Mass.	Boston	746	....	16	13	....	1	7	783
	Nantucket	952	....	16	44	....	2	33	1,037
Mich.	Alpena	1,124	....	130	14	8	5	8	1,289
	Detroit	8,174	....	119	22	2	5	9	8,331

* Data taken from *Your Hay Fever*, The Bobbs-Merrill Company, New York (1936) by Oren C. Durham. Abbreviations: Russ. This., Russian Thistle; Chen. & Amar., Miscellaneous Chenopod and Amaranth; Comp., Composite.

Appendix C (Cont.)

State	*City*	*Ragweed*	*Russ. This.*	*Chen. & Amar.*	*Grass*	*Sage*	*Comp.*	*Misc.*	*Total*
	Frankfort	4,801	....	1,148	56	....	62	48	6,115
	Isle Royal	133	....	16	1	....	1	5	156
	Marquette	993	....	100	8	14	9	15	1,139
	Petoskey	669	....	58	11	8	4	66	816
	St. Ignace	687	....	115	7	2	14	16	841
	Slt. Ste. Marie	197	....	16	3	1	5	3	225
Minn.	Duluth	2,476	....	158	24	12	26	26	2,722
	Minneapolis	9,077	102	314	62	37	7	45	9,644
	Moorhead	4,860	1,211	374	90	74	1	70	6,680
	Tower	253	25	36	4	2	15	12	347
Miss.	Biloxi	446	....	8	47	....	61	13	575
	Vicksburg	1,820	....	61	65	22	14	244	2,226
Mo.	Kansas City	7,708	68	601	85	4	7	97	8,570
	St. Louis	10,708	....	590	75	3	10	40	11,426
Mont.	Miles City	190	591	37	7	230	3	15	1,073
Neb.	North Platte	835	385	4,545	238	112	31	44	6,190
	Omaha	9,381	161	1,607	186	5	2	1,396	12,738
Nev.	Reno	12	150	33	40	48	19	72	374
N. H.	Bethlehem	262	....	11	34	....	20	9	336
N. J.	Atlantic City	1,692	....	45	25	....	4	10	1,776
N. Mex.	Roswell	350	219	122	278	56	25	39	1,089
N. Y.	Buffalo	11,069	....	66	21	6	16	30	11,208
	Lake Placid	206	....	10	10	1	24	26	277
	New York	1,575	....	184	93	....	8	20	1,880
N. C.	Asheville	4,070	....	58	63	20	10	26	4,247
	Hatteras	4,646	....	203	177	....	22	49	5,097
	Raleigh	1,715	....	33	51	3	3	14	1,819
Ohio	Cleveland	6,956	....	94	18	....	5	3	7,076
Okla.	Oklahoma City	5,395	....	2,333	362	58	66	132	8,346
Ore.	Portland	0	1	12	45	....	....	70	128
Pa.	Philadelphia	2,841	....	47	19	....	3	10	2,920
	Pittsburgh	4,652	....	29	10	....	11	10	4,712
R. I.	Block Island	1,490	....	14	17	....	8	30	1,559
S. C.	Charleston	670	....	50	85	....	6	13	824
S. Dak.	Pierre	1,199	511	488	78	243	8	82	2,609
Tenn.	Knoxville	3,893	....	46	62	14	9	10	4,034
	Memphis	5,219	....	139	119	69	17	224	5,787
Tex.	Amarillo	170	296	264	135	43	5	29	942
	Brownsville	1,222	....	265	300	10	81	517	2,395
	Corpus Christi	2,327	....	126	66	....	9	50	2,578
	Dallas	6,424	....	749	91	3	60	933	8,260
	Galveston	3,012	....	23	38	....	9	40	3,122
	Houston	7,255	....	27	96	....	25	102	7,505
Utah	Salt Lake City	282	310	239	23	123	11	46	1,034
Wash.	Spokane	8	68	77	31	21	4	42	251
Wisc.	Eagle River	718	....	75	6	7	12	12	830
	Madison	24,889	10	413	143	56	41	36	25,588
	Milwaukee	6,112	....	105	29	4	7	13	6,270
Wyo.	Lander	1,333	122	251	202	965	9	141	3,023
Canada:									
Ont.	Cochrane	114	....	13	14	....	5	31	177
Que.	Father Point	96	....	30	23	10	10	98	267
	Montreal	899	....	9	7	....	2	8	925
Ont.	Ottawa	583	....	72	23	....	28	16	722
	Parry Sound	456	....	25	11	1	16	8	517
	Port Arthur	355	8	28	26	5	2	54	478
	Toronto	1,534	....	17	16	....	....	10	1,577
Manit.	Winnepeg	507	177	107	11	18	13	19	852
Mexico:									
	Mexico City	34	....	40	97	1	19	121	312
	Tampico	279	....	14	85	1	148	100	627

Appendix D

Tabulation of Daily Gravity Counts of Air-Borne Ragweed Pollen in Certain Cities of North America, by Regions *

Region and Place	*Year or Years*	*Ragweed Pollen Counts in Numbers of Grains per 1.8 sq. cm. Area*		
		Days Above 25	*Maximum Count*	*Total Season's Count*
Pacific Northwest				
Portland, Ore.	1933	0	0	0
Seattle, Wash.	*1929*	*0*	*0*	*0*
Spokane, Wash.	1933	0	2	8
Boise, Idaho	1929, 1933	3	50	270
Southwest				
Los Angeles, Calif.	1929, 1933	0	14	88
Phoenix, Ariz.	1933	0	17	145
El Paso, Tex.	1929	0	9	110
Great Lakes Area				
Duluth, Minn.	*1934–1935*	*29*	*250*	*2,476*
Tower, Minn.	1934–1935	4	46	253
Eagle River, Wisc.	1934–1935	8	140	718
Plum Island, Wisc.	1935	22	434	2,679
Milwaukee, Wisc.	1931–1933	30	1,485	6,561
Chicago, Ill.	1929–1935	32	1,006	6,351
Detroit, Mich.	1930–1933	30	1,232	4,913
Frankfort, Mich.	1934–1935	32	720	4,801
Petoskey, Mich.	1934–1935	8	118	669
St. Ignace, Mich.	1934–1935	8	168	687
Sault Ste. Marie, Mich.	1935	5	39	197
Alpena, Mich.	1935	13	192	1,124
Marquette, Mich.	1934–1935	13	286	993
Isle Royal, Mich.	1934	1	48	133
Port Arthur, Ont.	1931–1933	4	134	312
Cleveland, Ohio	1929–1934	29	1,270	5,318
Toronto, Ont.	1930–1933	14	231	1,251
Buffalo, N. Y.	1929–1933	35	2,000	8,992
Parry Sound, Ont.	1934–1935	5	101	456
Canada (Other than above)				
Prince Albert, Sask.	1930	0	5	6
Winnepeg, Manit.	1930–1933	4	252	374
Cochrane, Ont.	1934–1935	1	38	114
Ottawa, Ont.	1931–1933	7	81	542
Montreal, Que.	1930–1933	10	132	744
Father Point, Que.	1934–1935	0	21	96
Upper New York and New England				
Lake Placid, N. Y.	1934–1935	5	59	206
Saranac Lake, N. Y.	1935	3	46	350
Bethlehem, N. H.	1934–1935	3	48	262
Rangeley Lakes, Me.	1934–1935	1	69	139
Eastern Seaboard				
Eastport, Me.	1935	4	43	280
Bar Harbor, Me.	1934–1935	5	76	426
Boston, Mass.	1929–1933	10	140	790
Nantucket, Mass.	1934–1935	12	309	951
Block Island, R. I.	1934–1935	20	336	1,490
New York City, N. Y.	1929–1935	20	254	1,575
Atlantic City, N. J.	1934–1935	18	391	1,692
Hatteras, N. C.	*1934–1935*	*41*	*650*	*4,646*
Southeastern Seaboard				
Charleston, S. C.	1931–1933	7	107	571
Jacksonville, Fla.	1930	0	20	205
Miami, Fla.	1929	0	3	8
Southern Appalachians				
Asheville, N. C.	1934–1935	31	630	4,070
Gulf Coast				
Tampa, Fla.	1933–1935	5	47	*563*
Mobile, Ala.	1931–1933	4	170	461
Biloxi, Miss.	1934	4	40	446
New Orleans, La.	1929–1933	20	295	2,157
Houston, Tex.	1930–1933	28	1,025	5,961
Galveston, Tex.	1934–1935	14	666	3,012
Corpus Christi, Tex.	1934	15	381	2,327
Brownsville, Tex.	1931–1933	20	375	1,980
Tampico, Mexico	*1932*	*2*	*56*	*279*

* Data taken from *Your Hay Fever.* The Bobbs-Merrill Company, New York (1936) by Oren C. Durham

Municipal Public Health Engineering*

Engineering Section

MUNICIPAL public health engineers need a combination of technical engineering skill and administrative ability. The technical functions are broad in scope and may cover practically all aspects of sanitation programs. In the field of sanitary engineering, private water supplies and sewage disposal installations are usually a direct responsibility. In a large number of jurisdictions the state has delegated certain responsibilities for control of public water supplies, sewerage and sewage disposal to local health officers whose staffs include public health engineers. Such delegation may include preliminary review of plans, desirable because of municipal public health engineers' knowledge of local conditions.

In coöperation with the state, supervision of chlorination, bacteriological sampling of water supplies, and control of cross-connections are local functions. Regulation and promotion of sanitary land-fills and improved general municipal waste collection and disposal directly affect rodent and insect control programs and are important responsibilities of local public health engineers.

Municipal public health engineers are directly concerned with the engineering aspects of design and installation of milk and food equipment. Since most sanitary control is based on engineering principles they must have broad technical interests.

Much basic information in these technical fields is already available. The research programs of the U. S. Public Health Service, the universities, and others are constantly adding to this knowledge. The National Sanitation Foundation program of research, combined with providing means for public health and industry to meet and arrive at mutually agreeable recommendations, is stimulating this important work.

In the field of sanitation administrative practice similar knowledge is not available. The committee reported last year on the work of its "other entity as the committee on Engineering Administrative Practice of the Conference of Municipal Public Health Engineers." It was stated that some of the fundamental administrative questions cannot be answered until comprehensive full-time studies are completed.

Among those fundamental questions are:

1. What should be the educational qualifications for sanitarians in local departments?
2. What specially trained technician services should be available to the administrator of the sanitation program?
3. What functions should be included in a well rounded health department sanitation program?
4. Under what circumstances should inspections and investigations be made?
5. How frequently should routine inspections be made in food, housing, milk, rodent control, and other programs?

Analysis of these and related factors will lead to fundamental criteria for determining the number and type of personnel needed for an adequate sanitation program.

A foundation is being laid for obtain-

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* Report of the Chairman.

COMMITTEE ON MUNICIPAL PUBLIC HEALTH ENGINEERING.
Organized 1933. Published Reports: *Year Books* 1934–1935, 1935–1936, 1938–1939, 1940–1941. *A.J.P.H.*, July, 1947. *Year Books*, 1947–1948.

ing answers to many of these questions by the work of William T. Ingram, Director of the Engineering Section Project. "The project proposed the exploration of problems related to sanitary and public health engineering with a view toward:

"1. The provision of adequate numbers of sanitation personnel to meet the demands of good sanitation service.
"2. The utilization of engineers and other sanitation personnel in positions of responsibility more useful to the health officer.
"3. The development of sanitary engineering and public health engineering as a professional career worthy of consideration by young men now acquiring college and university training.
"4. The stimulation of expanded undergraduate and graduate training programs needed to prepare the student for his professional rôle in sanitation services.
"5. The improvement and broadening of sanitation services to insure adequate consideration of state and community requirements for a safe potable water supply; a safe and sanitary means of treatment and disposal of sewage, garbage, refuse, and industrial waste; a food and milk supply meeting standards of sanitation; a satisfactory living, working and recreational environment including housing, industrial sanitation, community air hygiene, swimming pool sanitation and other activities necessary to the promotion of the health, welfare, safety, and comfort of the individual."

One of the several accomplishments of the project is aimed at filling an important gap in our administrative knowledge by "field trials and assistance in publication and distribution of a *Sanitation Evaluation Schedule* for experimental use in the study and appraisal of community sanitation programs. (More than 800 copies of the schedule have been distributed to universities and state and local health departments.)"

The committee strongly urges that every effort be made to continue the Engineering Section Project.

In analyzing the administrative responsibilities of the municipal public health engineer the committee recognizes certain fundamental relationships. The program must be an integral part of the entire local health program. In those fields where the state has legal responsibilities the local policies must conform to those of the state. By coöperative teamwork mutual confidences develop to promote those harmonious relationships essential to successful programs.

The Engineering Section provides the important link between municipal public health engineers, health officers, state sanitation administrators and educators in the field of sanitation. Again, teamwork must be continued and expanded.

The Association's Committee on Administrative Practice, through its reports and recommendations, plays an important rôle in determining local administrative policies. The Engineering Section should have available sufficient data to assist and participate in developing formulae for sanitation administration.

Efficient administrators must decide which jobs require special knowledge and training. When a program requires the technical services of veterinarians, entomologists, biologists, food technologists, and other specialists, the public health engineering administrator must recognize the need and seek to supply those services.

Vitally needed for efficient administration is a basic method for determining the required or desirable members and types of sanitation personnel. It is urged that until such figures are available the Association refrain from recommending numbers of sanitation personnel per unit of population. Actual work measurements in 9 urban and semi-rural districts with from 70,000 to 300,000 population showed a variation of 300 per cent in district sanitarians required per unit of population.

The study indicated an overall sanitation personnel requirement of one per 6,500 population. This marked variation from other published figures such as one sanitation worker per 20,000 or 25,000 indicates the urgency of work load studies.

Health officers as well as municipal public health engineers are frequent targets of public criticism because of inadequate sanitation programs. Disgraceful housing conditions, filthy restaurants, hordes of rats, and excessive numbers of citizen complaints are largely due to grossly inadequate numbers of sanitation employees.

Another important factor is an efficient administrative program. The Committee on Administrative Practice of the Conference of Municipal Public Health Engineers has recognized the need for administrative studies. Six subcommittee reports were presented at the annual meeting covering the administrative procedures for regulating or handling:

Circuses, Carnivals and Tent Shows
Construction of Private Sewage Disposal Systems
Cross-Connections
Nuisance Complaints
Construction of New Bakeries
Adult Convalescent, Nursing and Rest Homes

Included were relationships with other local departments, procedures for reducing inconvenience to the applicants, and methods for generally improving efficiency.

In view of the interest shown and the agreed need, this type of study will be continued and expanded. A research project has been approved by the Research Grants Division of the U. S. Public Health Service to furnish answers to most of these problems. This will be done under the Association's Engineering Section Project.

Recognizing the need for continued improvement in the administration and execution of local sanitation responsibilities the committee recommends:

1. Adequate training and recruitment of sanitation personnel should be stimulated by supporting such programs as:
   a. The Engineering Section Project
   b. The training programs of the U. S. Public Health Service and the Kellogg Foundation
   c. Well organized state and local threshold and inservice training programs
   d. Programs of colleges and universities adequately staffed and equipped for sanitation training
2. Recognition of the place of technical specialists and trained sanitarians in administration and execution of sanitation programs by:
   a. Continuing the liaison between the Engineering Section and all related groups as started by the Policy Advisory Committee
   b. Continuation of the expansion of interests of the Section and Section programs to include all phases of environmental sanitation
3. Encouraging adoption of uniform codes and participation with industries in development of improved sanitary construction, operation and maintenance by:
   a. Standard ordinances proposed by the U. S. Public Health Service
   b. The program of the National Sanitation Foundation
4. Continued development and improvement of sound administrative programs and practices leading toward:
   a. Better means for determining and "selling" adequate numbers of sanitation personnel
   b. Coördination of programs with the health officers, the medical, nursing, and health education programs, and the state and other related official and nonofficial agencies
   c. Improved general administrative procedures.

CHARLES L. SENN, City Health Department, Los Angeles, Calif., *Chairman*
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GUY M. TATE

Rural Sanitation*

Engineering Section

THE committee was first formed by action of the Engineering Section Council in February, 1947. The committee activities were expanded by the Section Council in October, 1948.

PURPOSE OF THE COMMITTEE

As amended in 1948, the objectives of the committee are now:

1. To gather factual information concerning rural water supply and rural sewage disposal practice in the United States.
2. To gather factual information concerning the status of progress on research in the design of rural water supply and sewage disposal systems.
3. To establish, if possible, standards of design acceptable to all federal, state, and local interests based on objective research and field information.
4. To coöperate in every way with federal, state, and local agencies charged with responsibilities for planning and approval of home water supply and sewage disposal systems.

NEW INFORMATION REPORTED IN 1948 ON HOME SEWAGE DISPOSAL

A. *U. S. Public Health Service Research*

The research project on sewage disposal sponsored by the National Housing Agency and the Public Health Service has developed considerable data in the last year. The work program was outlined in the 1947 report of this committee (see *Year Book 1947–1948*). The data had not been cleared by the sponsoring agencies in October, 1948, but should be released soon.

B. *Individual State F.H.A. Sewage Disposal Requirements*

The F.H.A. has added four to the list of states for which printed F.H.A. requirements are available. These are: Alabama, Georgia, New Hampshire, Wyoming. (See 1947 report for list of other states.)

C. *Engineering Section Committee on Rural Sanitation*

This committee has made a comparison of the recommendations for home sewage disposal in the several states and those of the Joint Committee. Information concerning the practice in 45 states is appended to this report.

The capacity for single tanks or the first compartment of double tanks varies from 300 gallons to 735 gallons. Thirty-two states recommended the same capacity as the Joint Committee recommends—500 gallons. Seven recommend less and 6 recommend more than that minimum.

The maximum number of persons allowed to use the minimum size tank ranges from 2 to 15. Only 1 state has a minimum below that of 4 persons recommended by the Joint Committee. Four states have the same recommendations and 29 are known to allow greater numbers to use their minimum size tank.

The tank dimensions mentioned by the Joint Committee are:

Length	72″
Width	36″
Water Depth	48″

Twenty-two states recommend the same length, 21 the same width, and 28 the same water depth.

The smallest minimum dimensions mentioned by the several reporting states are:

Length	54″
Width	24″
Water Depth	38″

* Progress Report.
COMMITTEE ON RURAL SANITATION.
Organized 1947. Published Report: *Year Book*, 1947–1948.

The corresponding higher minimum limits reported were:

Length	84"
Width	48"
Water Depth	60"

Four report less length, 4 less width, and 2 less water depth, while 1 reports more length, 2 more width, and 3 more water depth. Detailed length and width were not reported by 14 states and four establish the dimensions on the basis of each problem.

The Joint Committee suggests that either one or two compartments are allowable and 8 states agree. However, 23 recommend one compartment only and 5 recommend two compartments. Two have no specific recommendations and 7 did not report on this item.

There is a great variation in the minimum area of trench required for efficient disposal in sandy soil. The figures vary from 60 sq. ft. in 2 states to 666 sq. ft. in another state. Twelve follow that recommended by the Joint Committee—150 sq. ft.—but 11 report a lower minimum, and 10 report a higher minimum.

Minimum length of trench varies from 30′ to 525′ and minimum bottom widths vary from 12″ to 24″. The Joint Committee recommendation of 100′ length and 18″ bottom width is followed by 12 states for length and 15 states for bottom width. Eight states report less and 14 report more minimum length. Twelve states report less and 6 report more bottom width. Five states determine these dimensions and the total area on the base of percolation tests and have not specified a minimum length.

Cesspools as a means of disposal are not approved by either the Joint Committee or 24 states. Twelve approve cesspools for certain conditions, and 8 make specific recommendations on the basis of the problem.

Grease traps are not required in 20 states nor by the Joint Committee report. Four states do require them, and 6 states consider them optional. Thirteen states gave no information concerning this practice.

The several comparisons are detailed in Table 1.

It appears that several of the states may maintain dual standards; i.e., those recommended generally and those for use in connection with F.H.A. home loan approval. Further study is needed before a quantitative statement can be made.

It also appears that at least 14 of the states lack legal authority to enforce compliance with home sewage disposal standards.

D. *Definitions re Rural Sewage Disposal*

This committee for purposes of its work has adopted the following definitions. The committee will be glad to receive and consider any proposed modification of these definitions or a statement of definitions which the committee should seek to establish by clearance with all interested agencies.

1. Home sewage is the liquid waste from individual dwelling units.
2. A cesspool is an excavation which receives raw sewage from the home including kitchen and laundry waste.
3. A seepage pit is an excavation which receives effluent from a home sewage treatment process.
4. A dry well is a covered pit with open-jointed lining through which drainage from roofs, basement floors, or areaways may seep or leach into the surrounding porous soil.

E. *Research on Problems of Rural Sewage Disposal*

Information has been reviewed on the following research:

1. *University of Michigan, Ann Arbor—Prof. Earnest Boyce*

This study involves the operation under parallel conditions of a number of commercial septic tank systems as well as tanks designed and built in con-

TABLE 1

Comparison of State Practice with the Recommendations of the Joint Committee on Rural Sanitation for Individual Sewage Disposal Systems, 42 States Reporting

Septic Tank Size and Capacity, 1st Compartment or Single Compartment Tank Rectangular

Capacity		*Persons*		*Length Inches*		*Width Inches*		*Water Depth Inches*		*Compartments Allowed*	
Gallons	*No. States*	*Max. No.*	*State Rec.*	*Min.*	*State Rec.*	*Min.*	*State Rec.*	*Min.*	*State Rec.*	*No.*	*State Rec.*
500	*J.C.R.*	*4*	*J.C.R.*	*72*	*J.C.R.*	*.36*	*J.C.R.*	*48*	*J.C.R.*	*1 or 2*	*J.C.R.*
300	3	2	1	54	1	24	1	38	1	1 only	23
320	1	4	4	60	1	30	2	45	1	2 req.	5
350	1	5	6	66	2	33	1	48	28	1 or 2	8
400	1	6	11	72	22	36	21	54	1	N.S.	2
450	1	7	3	84	1	42	1	60	2	Unk.	7
500	32	8	4	N.S.	4	48	1	N.S.	4		
540	2	9	1	Unk.	14	N.S.	4	Unk.	8		
630	1	10	3			Unk.	14				
720	1	15	1								
735	1	N.S.	3								
N.S.	1	Unk.	8								

Effluent Disposal								*Pre-Treatment*	
Drainage Field						*Cesspools*		*Greasetraps*	
Equiv. Trench Area Min. Sq. Ft.	*State Rec.*	*Bottom Width of Trench Min. Inches*	*State Rec.*	*Length Trench Sandy Soil Min. Ft.*	*State Rec.*	*Recom.*	*State Rec.*	*Recom.*	*State Rec.*
150	*J.C.R.*	*18*	*J.C.R.*	*100*	*J.C.R.*	*Not Approved*	*J.C.R.*	*Not Required*	*J.C.R.*
60	2	12	9	30	1	Approved	11	Required	4
75	1	13	1	40	1	Not Approved	24	Not Required	20
85	1	15	2	50	1	Apr. Effl. Only	1	Optional	6
100	1	18	15	70	1	N.S.	8	N.S.	2
105	1	24	6	75	2	Unk.	1	Unk.	13
120	3	N.S.	5	85	2				
128	1	Unk.	7	100	12				
138	1			120	4				
150	12			125	1				
160	2			150	3				
180	1			160	2				
188	1			200	3				
200	3			525	1				
300	1			PTR	5				
400	1			N.S.	4				
666	1			Unk.	2				
N.S.	5								
Unk.	7								

N.S. = Not Specified in General Recommendations.
Unk. = Unknown.
J.C.R. = Recommendations of U.S.P.H S. Joint Committee on Rural Sanitation Reports.
P.T.R. = Percolation Test Required for Determining Figure.

formance with the recommendations of several governmental agencies and modifications thereof. In addition a group of actual residential septic tank systems will be studied and operated under supervision and laboratory control.

The tanks to be operated in parallel will receive sewage from the separate sanitary sewer system of Ann Arbor.

2. *Rensselaer Polytechnic Institute, Troy, N. Y.—Prof. E. J. Kilcawley*

This project involves a study of the capacity of soils for subsurface disposal of settled sewage.

3. *University of Illinois, Urbana—Prof. H. E. Babbitt*

This study is designated as "The In-

TABLE 2

Comparison of Home Sewage Disposal Design Data of Joint Committee Report With Practice Reported by 45 States

	Legal Auth.	*Tank*					*Drain Field*				
	Auth. to Enforce Compliance with Rec.	*Minimum Tank Capacity Gallons, 1st Compartment*	*Maximum No Persons*	*Minimum Length (Inches)*	*Minimum Width (Inches)*	*Minimum Depth (Inches)*	*Compartments No.*	*Minimum Area Tile Field (Square Feet)*	*Minimum Length Sandy Soil (Feet)*	*Minimum Trench Width Bottom (Inches)*	*Cesspools Approved*	*Grease Trap Required*
J.C.R.		*500*	*4*	*72*	*36*	*48*	*1–2*	*150*	*100*	*18*	*No*	*No*
States Reporting												
Alabama	DL	320	10	54	36	38	2	188	150	15	No	No
Arizona	Yes	300	2	60	24	48	2	150	100	18	Yes	No
Arkansas	Yes	500	6	?	?	48	1–2	150	100	18	No	?
California	DL	540	5	72	36	48	2	NS	NS	NS	NS	NS
Colorado	No	500	?	?	?	?	?	?	?	?	?	?
Connecticut	Local	500	5	72	36	45	1	85	85	12	No *	Opt.
Delaware	No	500	5	NS	NS	NS	1	NS	NS	NS	No	Opt.
District of Columbia	*No Report*											
Florida	DL	500	4	72	36	48	1	75	75	12	No	No
Georgia	DL	500	9	72	36	48	1	200	200	12	No	No
Idaho	No	500	6	72	36	48	1	150	100	18	Not Gen.	No
Illinois	DL	540	7	72	36	48	1	200	200	18	Not Gen.	No
Indiana	DL	500	NS	66	36	48	1	138	125	13	No	No
Iowa	DL	350	7	?	?	?	1–2	105	70	18	No	Opt.
Kansas	No	500	?	?	?	?	?	?	PTR	?	?	?
Kentucky	Yes	500	6	?	?	48	1–2	150	100	18	Yes	?
Louisiana	Yes	500	6	?	?	48	1–2	150	100	18	No	?
Maine	DL	400	4	NS	NS	NS	1	100	50	24	No	Yes
Maryland	DL	735	15	84	42	48	2	666	525	15	Yes	No
Massachusetts	DL	300	?	NS	NS	NS	NS	NS	NS	NS	Yes	Adv.
Michigan	DL	500	8	66–70	33–34	54–48	1	150	150	12	No	No Rec.
Minnesota	DL	500	5	72	36	60	1–2	60	30	24	No	Opt.
Mississippi	Yes	500	6	?	?	48	1–2	150	100	18	No	?
Missouri	Yes	500	6	?	?	48	1	150	100	18	No	?
Montana	*No Report*											
Nebraska	No	500	?	?	?	?	?	?	PTR	?	?	?
Nevada	Yes	500	4	72	36	48	1	150	75	24	Yes	No
New Hampshire	No	500	8	72	36	48	1	120	120	12	For Effl.	Not Nec.
New Jersey	No	720	8	72	48	48	1	160	160	12	Yes	Recom.
New Mexico	No	500	?	?	?	?	?	?	PTR	?	?	?
New York	DL	500	6	72	36	48	1	120	120	12	Yes	No
North Carolina	DL	630	6	72	36	48	2	180	120	18	No	No
North Dakota	DL	500	5	72	36	48	1	60	40	18	No	Recom.
Ohio	DL	500	NS	72	36	60	1	NS	100	NS	No	Adv.
Oklahoma	No	500	?	?	?	?	?	?	PTR	?	?	?
Oregon	Yes	500	6	72	36	48	1	150	100	18	Yes	No
Pennsylvania	No	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
Rhode Island	No.	500	8	72	36	48	1	160	160	12	Yes	Opt.
South Carolina	DL	500	10	72	36	48	1	150	100	18	No	No
South Dakota	*No Report*											
Tennessee	Yes	500	6	?	?	48	1–2	300	150	24	No	?
Texas	No	300	?	?	?	?	?	?	PTR	?	?	?
Utah	No	500	7	72	36	48	1	200	100	24	Not Gen.	No
Vermont	DL	500	5	72	36	48	1	128	85	18	Yes	No Rec.
Virginia	DL	450	4	72	30	48	1–2	400	200	24	No	No
Washington	Yes	500	6	72	36	48	1	150	100	18	Yes	No
West Virginia	DL	500	10	72	30	54	1	120	120	12	No	No
Wisconsin	*No Report*											
Wyoming	No	500	?	?	?	?	?	?	?	?	?	?

* = Usual.
DL = Data Lacking or Incomplete.
? = Information not known.
NS = Not Specified in General Recommendations.
PTR = Percolation Test Required for Determining Figure.

vestigation of Small Septic Tanks." The university has entered into an agreement with a manufacturer of commercial tanks for the purpose of testing five tanks and determining which of three new designs is best. The work has been in progress for about one year.

4. *Purdue University, West Lafayette, Ind.—Prof. D. E. Bloodgood*

This involves a study of the development of a household incinerator for garbage and sewage.

5. *Conference of Municipal Public Health Engineers, Committee on Administrative Practice—W. H. Cary, Jr., Chairman*

This committee is studying the administrative procedures used in processing the construction and installation of new septic tanks. Reports have been received from ten local health departments in 1948. All replies lead to the tentative conclusion that public health engineering activities in local health departments should include some control of new septic tank installations. Further data are needed to confirm this conclusion.

INFORMATION ON RURAL WATER SUPPLY, 1948

A. *Joint Committee on Rural Sanitation*

The Joint Committee has published a companion to U.S.P.H.S. *Reprint 2461*, "Individual Sewage Disposal Systems." It is "Rural Water-Supply Sanitation," published as *Supplement 185* to the *Public Health Reports* of the U.S.P.H.S.

B. *Engineering Section Committee on Rural Sanitation*

This committee has begun a comparison of state standards for individual home water systems with the Joint Committee recommendations. Partial data have been compiled for 8 southeastern states. The committee will make the comparison available in its 1949 report.

C. *Research on Rural Water Supply Problems*

It does not appear that this field of research is receiving any marked attention at the present time.

The committee believes that research is needed on the following problems:

1. Requirements for protection of cistern water supplies
2. Treatment of home ground water supply containing excessive amounts of iron and manganese
3. Methods of continuous disinfection of home water supplies
4. Methods of disinfection of water lifted by hand pump

The committee would appreciate the receipt of information concerning research or standards now being developed by universities, official agencies, or individuals.

WILLIAM T. INGRAM, American Public Health Association, *Chairman*
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School Sanitation*

Engineering Section

DURING the first year of the committee's activity the objective was to develop a bibliography of material and standards covering the various subject matters in school sanitation. This bibliography was published with the report of last year and has been found useful to many sanitarians throughout public health.

A pattern was set at Ann Arbor last year in June for arriving at group judgment in the field of food control. It would seem that there is need for a clinic on school sanitation to iron out some of the variations in opinion in standards for school plant design.

Your chairman met with a committee of the National Council of Education on school house construction at which school administrators and architects met to consider the problem facing school administrators in the next ten years in the remodeling and revamping of present facilities and the construction of new facilities. It was conservatively estimated that $10 billion would be spent in this type of activity and that it would be highly desirable that some agreement be reached now as to details of building design from the various experts. Many of these problems do not involve public health, but all of them have to be considered by the architect before construction starts. Costly mistakes should be avoided. Old mistakes should not be perpetuated.

The report on the utilization of plumbing facilities which was made by the National Council of Education is still the best material available on that particular subject, which has pointed out the absurd variation in plumbing requirements of the various areas. The following of the standards suggested in their report will effect material savings.

The experimental work in lighting that has been carried out by the Illuminating Engineering Society Committee on Lighting is the best information available in that field. The experimental work conducted at Nela Park Experimental Station at Cleveland points the way to the latest thinking in light control and its application. Dr. Darell B. Harmon and others have been very successful in making field application of recommendations of the lighting engineers with the use of revamped window areas, more judicious use of color dynamics in painting the rooms, the selection of chalk boards that do not absorb light, and the use of shades to cover the chalk boards while not in use, all of which improve the quality as well as the intensity of light in existing structures without undue cost.

The work that has been carried out in sewage disposal by other committees is expected to point the way toward any improvement in septic tank installation that may be needed.

In connection with sewage disposal: Last winter in Michigan, during the extreme cold weather that existed during January, several school septic tanks and disposal fields froze. Six of these units were excavated while they were frozen and found to have ice on the tank

* Report of the Committee.
COMMITTEE ON SCHOOL SANITATION.
Organized 1947. Published Report: *Year Book* 1947–1948.

and in two cases ice in the tile field and in all cases the inlet pipe was frozen full. Several useful recommendations come from this experience. It was found, for instance, that by placing five pounds of salt daily in the toilet stool nearest to the frozen area that the ice plug would thaw out and several schools were able to put their system back into service by using this method.

The placing of sewer lines and septic tanks in schools where the eaves can drain onto the ground causing the soil to be saturated produced a condition that made it easy to freeze the lines. It was also found that paths worn by the children and the water from the eaves had eroded the ground in these areas so that the cover over the sewer line was packed tightly and was worn down several inches from the original grade. By placing additional fill and eave-troughs with down spouts in these areas it is thought that it would prevent a reoccurrence of these conditions.

The Study Group on Sanitation of the American Public Health Association, under the Subcommittee on State and Local Health Administration of the Committee on Administrative Practice, has suggested that grading systems be developed for all of these areas of environmental control, such as the grading system now used to grade a milk shed or a restaurant program. The Committee on School Sanitation this year has collected several grading procedures to determine if any of the systems that are now being used are suitable to rate the status of school sanitation in an area. All of the systems that have been reviewed to date involve a numerical percentage point assigning a weight to each item scored which totals 100 per cent for all the items. It is obvious that there are certain key items that are important enough so that a substandard condition should be assigned enough points to degrade the school in a poor class. A good example of this would be water supply or sewage disposal. In other words, if the water supply was found to be unsafe or the sewage disposal insanitary, it is a condition which should receive high enough penalty points to score the school substandard and potentially dangerous.

The Michigan Department of Health has used a system of colors, which gets around the numerical rating, and if any key item is found to be substandard the color arrangement is developed in such a way that the entire school would be scored a poor color. While this works very well on an individual school, it is not practical on an area basis.

The Committee on the Hygiene of Housing has developed a system of penalty points which is the reverse of the system used in rating a milk shed or the ones that are now used in school sanitation. This system assigns penalty points to items that are in non-compliance, and if every item were satisfactory the score for the school would be zero. In this way it is possible to exceed 100 penalty points to any extent necessary. This system has worked very successfully with housing and certain items are scored as basic deficiencies, which are considered the important items. Such a scoring system might well be developed for rating schools.

There is not a uniform group of items used by sanitarians for grading schools. The committee has developed a list of broad topics that are thought to be important in inspecting schools (see Table 1).

There are standards now available that are uniform for most of these items. The items of safety, hall widths, stairway construction, exits, and fireproofing are available through the recommendations of the National Board of Fire Underwriters, New York City. The utilization of sanitary facilities which suggests the number of toilets, drinking fountains, and lavatories is available through the American Council of Education,

TABLE 1

Group I	*Group II*	*Group III*
Site	Water supply	Sewage disposal
Structure	Drinking fountains	Refuse disposal
Rooms	Food Equipment	Source of food
Seating	Showers and Locker Rooms	Handling procedure of hot lunch program
Heating and ventilating	Swimming pool	
Lighting	Handwashing facilities	Housekeeping
Safety	Toilet facilities	

Washington, D. C. An abundance of material and suggested standards of lighting, painting, and color choices is available through most paint manufacturers and power companies.

The arrangement of school furniture and the most desirable types of seating is fairly well agreed upon by the educators. The seating should be moveable and adjustable.

Answers are still needed in some items, such as:

1. Is open window ventilation satisfactory?
2. Where mechanical ventilation is used, how many cubic feet of air per child is required?
3. How much, and under what circumstances, can air be recirculated safely?
4. What are the optimum temperatures and humidity conditions for health and learning?
5. Is air conditioning feasible and economical under typical school conditions?
6. How much water is consumed per pupil?
7. How much septic tank capacity should be provided per pupil?
8. How much floor space should be provided per pupil?
9. What are satisfactory methods of dishwashing and food handling in rural schools?
10. How should the floor be treated and what are suitable coverings for the floor?

The American Council on Education is making an effort to find financial assistance to hire a staff to investigate these problems and to set up a clearinghouse for information and useful ideas. The Committee on Educational Plant and Equipment recommended a research project which would extend for three years at a cost of $50,000 per year to work on problems of school plants and equipment. Such a project is needed to find the best answers to these problems and could save many dollars in future construction.

The problems in school sanitation divide themselves into four classifications:

1. The one or two room rural school, which produces its own water supply and provides its own sewage disposal facilities on the school site and is constructed with or without a basement.
2. The consolidated school, located in a rural area, which has its own water supply and sewage disposal facilities.
3. The graded school or high school unit found in the average urban community.
4. The large urban school or college which has groups of buildings and grounds.

The problems in each of these schools are materially different and need special study and application. To date, the committee has been concerned primarily with the first three classifications with the bulk of the emphasis on the first classification.

HERBERT J. DUNSMORE, Sanitation Bureau, Pittsburgh City Health Department, Pittsburgh, Pa., *Chairman*
RICHARD G. BOND
LEONARD BOARD
SAMUEL P. KINGSTON
EDWIN L. RUPPERT
L. M. CLARKSON
ALBERT W. HAPPY, JR.

Water Supply*

Engineering Section

RECENT reports of this committee have discussed important trends which pertain directly or indirectly to the quality of public water supplies. This policy has been continued this year.

The high cost of material and labor and the unsettled economic conditions have led to the postponement of many improvements to water supply systems and to an increase of as much as 250 per cent in the cost of construction work as compared with pre-war conditions. This unfortunate situation is resulting in still further prolonging the delayed maintenance characteristic of the depression period and the subsequent war period. As a result, many water supply systems are overloaded and are in urgent need of repair and expansion. A survey of water supply needs by the U. S. Public Health Service discloses estimated construction costs as of 1947 to be $2,269,000,000, of which 17 per cent was for projects ready for construction, 27 per cent for those being planned, and 56 per cent for those considered to be future projects.

The estimated population of 2,360,000, residing in small communities not served by public water supply systems, is of public health significance, because many private wells in such communities have been found to be subject to pollution because they must of necessity be located close to potential sources of pollution. Public water supply systems needed to supersede these private wells are considered to be practicable for communities as small as 200 population. Health officials should support this essential construction program.

More attention is being given to water resources and to long-range planning as to the appropriate use of such resources. A Water Resources Division of the American Water Works Association was organized this year. There is growing interest in the development of standards of well construction. State organizations of well drillers are becoming active. It is very evident, therefore, that public health engineers should consider the role of health departments in the licensing of well drillers, the enactment of official well codes, etc. There are so many aspects to this subject that great care must be exercised in the development of state programs so as to avoid inconsistencies and thus retard developments on a nation-wide level.

WATER-BORNE DISEASES

The stream pollution abatement programs under way in a number of states, supplemented and coördinated by federal government under provisions of recent legislation, have led to considerable popular literature on the subject which focuses attention upon water-borne diseases as justifying stream pollution abatement. Unfortunately, much of this literature is so misleading as to give the impression to the layman that most public water supplies are secured from sewage polluted streams, and conversely that the mere installation of sewage treatment plants will lead to safe water supplies.

A reëxamination of the statistics of

* COMMITTEE ON WATER SUPPLY.
Organized 1922. Published Reports: *A.J.P.H.*, Sept., 1924, Apr., 1925, Feb., 1926, July, 1927, Apr., 1928, Feb., 1929, May, 1930, *Year Books* 1930–1931, 1931–1932, 1932–1933, 1934–1935, 1937–1938, 1939–1940, 1940–1941, 1941–1942, *A.J.P H.*, July 1945, May, 1947, Feb., 1948.

water-borne diseases was made recently by Eliassen and Cummings[1] so as to focus attention upon the generally satisfactory character of public water supplies, but at the same time to indicate improvements in technique and control which are needed to reduce further the incidence of water-borne diseases, especially among those served by private and semi-public supplies of institutions and summer resorts in rural areas. In other words, sanitation including water supply supervision must be brought to the rural population which often lives under conditions of exposure characterized by urban communities in pre-sanitation days.

Gastroenteritis continues to present a baffling technical problem. It would seem that much gastroenteritis is spread by contaminated food or by direct contact under insanitary conditions. Water-borne gastroenteritis also is associated with insanitary conditions. Frequently such outbreaks are found to be mild bacillary dysentery. The continued prevalence of obscure outbreaks, where no known pathogens have been isolated from stool specimens, led to a research program by the New York State Department of Health.[2] Preliminary results indicate that at least one type of virus has been isolated. Volunteers have been infected by the oral route under laboratory conditions. It has not been demonstrated as yet, however, whether this virus actually is transmitted by polluted water supplies nor is there any information as to the susceptibility of the virus to the action of chlorine. It may be that the virus is spread primarily by contaminated food or by direct contact under insanitary conditions. These studies are being continued.

Previous reports of this committee have discussed the lack of epidemiological evidence that poliomyelitis is spread by water supplies. Nevertheless the virus has been isolated from sewage and thus the committee has felt justified in drawing attention previously to the disclosure that the virus is susceptible to the action of conventional concentrations of free residual chlorine. Unpublished results of the continued studies by the Michigan Department of Health have indicated that this effectiveness is restricted to the range of lower pH values, but that lime-soda softened waters should be prechlorinated before the alkali is added to insure satisfactory destruction of the virus. We understand that at least one city in Michigan is planning a prechlorinating contact chamber for this purpose.

TOXIC ALGAE

Domestic animals have been reported as dying following the consumption of surface waters containing prolific growths of blue-green algae. The conclusion has been reached that this may be due to the cyanide content of such aquatic vegetation. As far as the committee could learn through a nation-wide questionnaire answered by the public health engineers of 39 states and 2 territories, there is no known instance where such toxic effects have been noted among human beings. The inference is that potable waters containing such prolific growths of algae would not be consumed. This subject is being studied at the University of Minnesota.

TRACE ELEMENTS IN POTABLE WATERS

The physiological benefits of small concentrations of iodine, fluorine, copper, etc., in potable waters, and conversely the toxic characteristics of somewhat higher concentrations of these and other elements, coupled with the recent disclosure that nitrates in excess of 10–20 p.p.m. may lead to cyanosis among infants, or that high concentrations of sodium may aggravate certain cardiovascular disorders, has focused attention upon trace elements in potable waters. The subject is being investigated at Johns Hopkins University and

elsewhere. It is very evident that more specific information is needed to forestall the popular misconception as to possible harmfulness of small concentrations of constituents in potable waters which heretofore have been ignored. In this connection it is pertinent to refer to an article by Levitt[3] which would be misleading to the layman in that the alleged harmful influence of small concentration of chlorine, fluorine, and bromine appears to be based upon definite data resulting from scientific research and extensive review of technical literature. Actually, the paper is very unsound technically—for instance, where residual chlorine which may remain temporarily in treated potable water is stated categorically to be responsible for degenerative processes, but where, for instance, the supporting argument gives no recognition to the fact that free chlorine very quickly is converted to the chloride ion and thereafter is identical to the ions of common salt present in much higher concentrations in food. While this article should not be taken too seriously it is being cited as a concrete example of confusion which prevails as to the physiological significance of trace elements in potable waters. Such confusion may well retard the progress of sanitation.

CYANOSIS DUE TO NITRATES IN POTABLE WATER

The significance of nitrates in potable water used in the preparation of formulae for infant feeding is being discussed at this session. It is pertinent at this time, however, to summarize the results of the nation-wide questionnaire of the committee which discloses the following situation:

Surveys have been reported in 13 of 39 states and 2 territories furnishing data. Concentrations of nitrates exceeding 20 p.p.m. in shallow, rural well waters have been noted in areas of 10 states. For instance, about 50 per cent of private wells in North Dakota so far examined yield water containing more than 20 p.p.m. nitrates. Concentrations of nitrates as high as 500 p.p.m. have been reported in 12 states and in Alaska. Actual cases of cyanosis, however, have been reported in only a few states, including North Dakota, where only 10 cases are known to have occurred in spite of the large number of rural wells containing over 20 p.p.m. nitrates.

Cornblath and Hartmann[4] recently concluded that only infants are involved because the pH of 4.0 or higher of their gastric juice enables nitrate reducing bacteria to function and form nitrites in the upper intestines, whereas the more acid gastric juice of older children and adults insures the assimilation of the nitrates before they are subject to this reducing action.

The surveys now in progress in a number of states, therefore, are needed to clarify this situation.

TOXIC METALS

The Drinking Water Standards of the U. S. Public Health Service now list the following metals as being toxic above the concentrations noted:

Lead, 0.10 p.p.m.; fluorine, 1.5 p.p.m.; selenium, 0.05 p.p.m.; and hexavalent chromium, 0.05 p.p.m.

Suggested upper limits are given for the following metals:

Copper, 3.00 p.p.m.; and zinc, 15.0 p.p.m.

The situation regarding the toxicity of chromium is somewhat indefinite because the toxic concentration noted above has been reported as being based upon transposition of values secured in the study of the toxicity of chromium dusts in industry. This uncertainty is under investigation. The nation-wide questionnaire circulated by this committee discloses that chromium wastes have been a problem in only 7 states and only then to a limited extent. Chromium is not an ingredient in natural waters but is incidental to the discharge of industrial wastes from aluminum anodyzing plants of the airplane industry.

The discharge of such wastes through percolation beds on Long Island in the absence of surface streams, has led to the pollution of ground waters, so that

concentrations of hexavalent chromium as high as 1.5 p.p.m. have been encountered in nearby well supplies. Because of this situation treatment facilities are under construction at 1 plant and are under design at 3 other plants, based upon established treatment procedure where the hexavalent chromium is reduced to the trivalent form, following which lime is added to form insoluble chromium hydroxide, which precipitates as a sludge. Similar plants have been installed in several other states.

Cadmium also is receiving attention as a toxic metal. Cadmium plating of plumbing fixtures has been reported but there is very limited information as to the possible future signifiance of this practice. Incomplete evidence seems to indicate that cadmium may be toxic when present in concentrations exceeding 0.5 p.p.m.

It is anticipated, therefore, that these problems will receive much greater attention now that extensive airplane construction is being resumed, and where new materials and industrial processes are being utilized.

CHLORINE DIOXIDE TREATMENT

The use of chlorine dioxide to destroy taste and odor producing compounds has received wide publicity. It is significant at this point to draw attention to research as to the disinfection characteristics of chlorine dioxide by the Massachusetts Department of Health and at the University of Michigan.[5] Tentative conclusions have been reached that chlorine dioxide appears to have disinfecting properties which are less affected by high pH values than equivalent concentrations of free residual chlorine. If these results are substantiated by studies with water of varying characteristics, it would seem that progress has been made in the disinfection of water having a high pH value incidental to corrosion prevention or lime-soda softening treatment.

CHLORINE RESIDUAL RECORDER

Ordinarily this committee would not refer to a single example of commercial water purification equipment, but the recent development of the chlorine residual recorder appears to represent an important stage in water chlorination practice. Experience at 14 installations has shown that the chlorine demand of water supplies fluctuates to a more marked degree than usually realized. In fact, these fluctuations have been correlated at some plants with details of operating control not usually associated with chlorination. Obviously the recorder permits closer control of chlorination within limits producing best results for a given water. The next logical development is the use of this equipment to control the dose of chlorine so as to maintain automatically a uniform concentration of residual chlorine in the treated water. Inasmuch as faulty operation of water purification plants has been found to be the cause of a number of outbreaks of water-borne disease, this development is of distinct public health importance.

BROMINE AS A DISINFECTANT

The nation-wide questionnaire distributed by the committee has indicated that bromine has been experimented with in several states but that it was used for a few years in the treatment of only a few public water supplies in one western state. Practical experience, therefore, is restricted to Illinois[6] where the water in 45 swimming pools has been disinfected for from 1 to 8 years. Bromine appears to be about as effective as chlorine as a disinfectant when present in equivalent concentrations. Its use in swimming pools is reported to produce less irritation of the eyes and throat and less taste and odor than comparable concentrations of chlorine. The bromine demand of water of high organic content, however, exceeds the comparable chlorine demand and resid-

ual bromine is less stable than residual chlorine. Bromine is reported as costing from 4 to 7 times as much as liquid chlorine.

Equipment for the application of bromine to water has not as yet been developed comparable to well established chlorinators. This disinfectant, however, warrants further study.

CIVILIAN DEFENSE

There has been considerable concern on the part of public health officials regarding potential hazards involved in the production and distribution of radioactive materials and particularly in the disposal of wastes resulting from their production and use. Much of this concern undoubtedly has risen from lack of available information with respect to the character of these wastes and adequacy of present methods of removing them from waters which have been contaminated.

The Armed Forces and the Atomic Energy Commission have recognized this problem and conducted courses of study for selected personnel who, in the event of disaster, could act in an advisory capacity to direct control measures.

The Atomic Energy Commission is receiving coöperation from the U. S. Geological Survey, the U. S. Public Health Service, and the U. S. Weather Bureau in considering disposal of liquid and gaseous waste at its various operating areas. In addition, a research program has been organized to study the effect of radioactivity on the more common biological processes used in sewage treatment.

During the past 2 years there has been a marked increase in the number of shipments of radioisotopes for use in medical and other research institutions. There has been concern on the part of public officials regarding unregulated discharge of wastes resulting from the use of these materials into public sewer systems. This problem is also under investigation by the Atomic Energy Commission.

The Office of Civilian Defense Planning has prepared a report covering all phases of national defense which includes a special section on public health activities. This document, which is unrestricted, is scheduled for early publication and distribution.

CONCLUSION

It is evident, therefore, that the supervision of public water supplies by health officials still presents many problems and opportunities and that the public health importance of this activity is not disclosed by typhoid fever statistics, nor can it be overlooked while exploiting novel or new aspects in the control of the environment. The financing of improved and expanded water supply systems and technical problems requiring basic research represent the outstanding challenges.

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CHARLES R. COX, Water Supply Section, New York State Department of Health, Albany, N. Y., *Chairman*
H. J. DARCEY
RAY L. DERBY
RAYMOND J. FAUST
ARTHUR E. GORMAN
HAROLD S. HUTTON
RAYMOND J. KARPEN
ARTHUR D. WESTON

Food and Nutrition*

THE Food and Nutrition Section held two independent and five joint sessions in connection with the 76th Annual Meeting of the Association in Boston, Mass., November 8–12, 1948.

The program and attendance follow:

Independent Session "Food Production and Processing in Relation to Conservation of Nutrients"	200
Joint Session with Laboratory "Milk"	165
Independent Session (held concurrently with joint session on "Milk") "Nutrition in Public Health"	175
Joint Session with American School Health Association "Child Nutrition"	220
Joint Session with Laboratory "Nutrition in Infection"	300
Joint Session with Health Officers, Laboratory, and Engineering "Sanitary Practices in the Food Industry"	216
Joint Session with Maternal and Child Health and Public Health Nursing "Content of Maternal and Neonatal Health Services"	400

MINUTES OF THE ANNUAL BUSINESS MEETING

The membership of the Nominating Committee was read by the Secretary at the opening of the first session at 9:30 a.m. Tuesday, November 9.

The business meeting was called to order at 11:30 a.m. Tuesday, November 12, by Marjorie M. Heseltine, Section Chairman.

The following committee reports were accepted:

Sanitary Practices in the Food Industry, Harry Goresline, *Chairman*

Committee on Standard Methods for Microbiological Examination of Foods, Harry Goresline, *Chairman*

Nominating Committee—Chairman presented the following slate:

Chairman—Harry Gorseline
Vice-Chairman—Paul Prickett
Secretary—Alice Smith
Councilor—(for the term ending 1953) Frances McKinnon
Representative on A.P.H.A. Committee on *Eligibility* *—Marjorie M. Heseltine
Representative on A.P.H.A. Governing Council, Nominating Committee—Ethel A. Martin

There were no nominations from the floor and the Secretary was instructed to cast a unanimous ballot for the slate presented by the Nominating Committee. (See changes listed under "Officers and Council Members" in report of Section Council Meetings.)

Marietta Eichelberger, *Chairman*, Nominating Committee
Fred Tanner
Henry T. Scott
Rachel Reed

Membership and Fellowship

The Chairman was inactive during the year and absent from the business meeting. The Secretary submitted the following report:

	9-1-1947	*9-1-1948*	*11-1-1948*
Members	439	452	452
Fellows	106	104	111
Total	545	556	563

The membership is evenly divided between those in the field of Food and those in Nutrition.

Thirty-nine applied for Fellowship and 38 were approved by the Section Council and submitted to the Association's Committee on Eligibility.

Dr. Kimball, Chairman of the Goiter Committee of the American Public Health Association, American Medical Association, U. S. Public Health Service and the State and Territorial Health Officers Association, gave a progress report of that committee and included a comment on proposed legislation for 1949.

Resolutions

Dr. Glen Slocum, Chairman of Resolutions Committee, read the following Resolutions:

School Lunch Program

WHEREAS, the service of nourishing noon meals at school is an important part of a program of health services and health education for children of school age; and

WHEREAS, the benefits of school lunches are freely available to all children only where public funds defray a substantial part of the cost of food, service, and administration; and

* Report of the Food and Nutrition Section Secretary.

* 2 year appointment

WHEREAS, federal, state, and local appropriations during recent years have not increased sufficiently to keep pace with rising costs of food and labor for preparing lunches, therefore be it

RESOLVED, that the American Public Health Association hereby endorses continued federal support under the National School Lunch Act and adequate state appropriations for matching federal funds and for the efficient operation of the program.

Red Cross Nutrition Service

WHEREAS, the current high costs of living in general and of high food costs in particular threaten the adequacy of family diets, and

WHEREAS, studies have shown that effective community education programs enable homemakers to obtain the maximum return in money expended for food, and

WHEREAS, local chapters of the American Red Cross are uniquely equipped to offer such an educational program, especially in urban areas, therefore, be it

RESOLVED that the American Public Health Association convey to the appropriate individuals its hope that this community nutrition service be continued and that chapters can continue to count on adequate consultation and other assistance from national and area offices.

It was moved and seconded that both resolutions be submitted to the Association's Committee on Resolutions for consideration by the Governing Council. The first resolution was adopted. The second was reported received.

Meeting adjourned—12:15 p.m.

MINUTES OF THE MEETINGS OF THE SECTION COUNCIL

Two meetings were held. The *first* meeting was called to order on Monday, November 8, at 4:00 p.m.—adjourned at midnight.

Officers and councilors present were:
Marietta Eichelberger
Harry Goresline
Marjorie M. Heseltine, *Chairman*
Margaret C. Moore
Alice Smith, *Secretary*

The *second* meeting was called to order on Thursday, November 11, at 12:15 p.m.—adjourned at 2:15 p.m.

Those present were:
Marietta Eichelberger
Harry Goresline
Marjorie M. Heseltine, *Chairman*
Frances McKinnon
Margaret Moore
Alice Smith, *Secretary*

Order of Business:

I. *Fellowship and Membership*

In the absence of the Section's representative on the Association's Committee on Eligibility (Mr. Ole Salthe), Miss Marjorie M. Heseltine again represented the Section. Thirty-nine applications for Fellowship were reviewed by the Section Council. Thirty-eight of them were submitted to and approved by the Committee on Eligibility. All membership applications published in the *Journal* and not approved by the Section Council were approved at this time.

II. *Progress Reports*

A. Merit System—In May, Miss Catherine Leamy assumed responsibilities of nutrition consultant to the Merit System Unit of the American Public Health Association. Miss Leamy has been reviewing and writing questions. Twelve public health nutritionists throughout the country are assisting with the preparation of questions.

B. Food and Nutrition Board—The secretary was instructed to relay to Dr. Atwater a memorandum recommending that the Association Executive Board submit to the National Research Council a request for the appointment of a liaison member from the American Public Health Association to the Food and Nutrition Board of the National Research Council.

In the event that such an invitation is extended to the Association, it would seem appropriate that an officer or a member of the Council of the Food and Nutrition Section serve as liaison member. The Section Council would like the opportunity to name the Association representative.

C. Program—The Secretary reported that the technique of canvassing Section members for program suggestions was a successful one and is worthy of repetition.

III. *Committee Reports*

A. Committee on Sanitary Practices in the Food Industry—Harry Goresline, *Chairman.* This committee was formed after the 1947 Annual Meeting, and plans to "bring together the available information in the field of sanitation, as it applies to the handling, processing, storing, transporting, and serving of food products, and from that information prepare a manual of effective, reasonable, and workable sanitary practices for the guidance of those engaged in, or dealing with the food industry." A preliminary outline of subjects to be covered in the proposed manual has been circulated to committee members and subject matter has been assigned to some members. The committee of fourteen has representation

from the Health Officers, Laboratory, Engineering, and Food and Nutrition Sections.

B. Committee on Standard Methods for the Microbiological Examination of Foods—Harry Goresline, *Chairman*. Dr. Goresline's report was on "Tentative Methods for the Microbiological Examination of Dehydrated Fruits and Vegetables." Dr. Goresline reported that work needs to be included on Precooked Frozen Foods and on Mayonnaise and Salad Dressing. The complete report has been submitted to the Association's Coördinating Committee on Research and Standards. The Committee on Microbiological Examination of Foods will no longer function as a section committee, but rather as a subcommittee of the Coördinating Committee on Research and Standards. Dr. Goresline has accepted the invitation to serve as chairman this year.

C. Committee on Research and Standards—Lloyd Jensen was appointed as the Section's representative. Dr. Jensen was not present and no report was submitted. The minutes of this committee's meeting were circulated to Section Council members at an earlier date.

IV. *New Committee*

Several members of the Section requested a committee be appointed to consider the implications for health and nutrition of some of the newer Practices in Food Production and Processing—this is to include insecticides, spray residues, food adjuncts, mold inhibitors, etc. Suggestions for committee membership are being sent to the chairman for consideration.

V. *Officers and Council Members*

Dr. Goresline submitted his resignation as Section Chairman. This action was prompted by his interest in and acceptance of the chairmanship of two committees. The chairman of the Nominating Committee was asked to review the deliberations and considerations of the committee, and present nominations to the Council. The Council elected Paul Prickett as *Chairman*. Since Dr. Prickett had been elected vice-chairman, he was contacted, resigned as vice-chairman, and accepted the chairmanship. This left a vacancy in the office of vice-chairman — Margaret Moore was elected. Miss Moore's unexpired term of Councilor was then filled by William H. Sebrell, Jr., M.D.

VI. *Rapporteur for Annual Meeting*

Fredrick Stare was appointed the Food and Nutrition Section's representative for reporting the highlights of the sessions at the summarizing general session. Dr. Stare chose to comment on only one paper.

VII. The Secretary submitted names of several members to Dr. Atwater to be invited to study and evaluate exhibits along with representatives of all other Sections.

VIII. *Editorial Board Luncheon Meeting*

Friday noon, November 12, the officers and councilors were the guests of the Editorial Board at a luncheon—the fee for which was "the grading of the papers presented at the annual meetings." This meeting was attended by the same persons who attended the Section's second Council meeting.

The Section officers and councilors, and especially the Secretary, wish to take this opportunity to thank all the members for their coöperation throughout the year.

We wish particularly to thank Dr. Atwater, Mrs. Walsh, and Miss Siemer for their many suggestions and the work they performed for the members.

ALICE H. SMITH, *Secretary*
Food and Nutrition Section. The American Public Health Association

OFFICERS AND COUNCIL MEMBERS
FOOD AND NUTRITION SECTION
AMERICAN PUBLIC HEALTH ASSOCIATION
November 13, 1948

Chairman—Paul Prickett
Vice-Chairman—Margaret Moore
Secretary—Alice H. Smith
Council Member (1949)—D. K. Tressler
Council Member (1950)—W. H. Sebrell, Jr., M.D.
Council Member (1951) — M. Eichelberger, Ph.D.
Council Member (1952)—Lloyd Jensen, Ph.D.
Council Member (1953)—Frances McKinnon
Representative A.P.H.A. Committee on Eligibility—Marjorie M. Heseltine
Representative A.P.H.A. Governing Council Nominating Committee—Ethel A. Martin

Section Committees
Committees and Chairmen

Sanitary Practices in the Food Industry—Harry Goresline, Ph.D.
Membership and Fellowship—Marjorie M. Heseltine
Nominations—Ethel A. Martin
Newer Practices in Food Production and Processing—(to be appointed)
A.P.H.A. Coördinating Committee on Standards of Research—Committee on Microbiological Examination of Foods—Harry Goresline, Ph.D.

Sanitary Practices in the Food Industry*

Food and Nutrition Section

THE Committee on Sanitary Practices in the Food Industry was formed after the 1947 meeting of the Association and has spent the year in organizing, clarifying the field of activity, and in laying out the work to be done. The committee was formed to bring together the available information in the field of sanitation, as it applies to handling, processing, storing, transporting, and serving food products, and from that information to prepare a manual of effective, reasonable, and workable sanitary practices for the guidance of those engaged in, or dealing with the food industry. Realizing that the field was broad and that the interest of various groups was involved, the committee was made up of representatives of the Engineering, Health Officers, Laboratory, and Food and Nutrition Sections of the Association. Each Section was asked to suggest those members having a definite interest in this type of work and who could prepare authoritative material. A representative committee of 14 members was made up from this list.

In keeping with the above objectives, the four Sections agreed to hold a joint session during the 1948 annual meeting, the program to deal with sanitary practices in the food industry. A program of 6 papers dealing with different phases of the subject was organized during the year for this joint session.

A preliminary outline of the subjects to be covered in the proposed manual was circulated to the committee membership and some agreement reached as to the manner in which the manual should be prepared. It has been tentatively agreed that the manual shall take the form of a series of discussions covering the principles and practices of sanitation as background material, followed by discussions on specific problems of individual food industries.

Members of the committee were asked to assume responsibility for certain sections of the manual and at the present writing about one-half of the general subject matter has been tentatively assigned. It will be necessary to go outside the committee for assistance in preparing certain sections, particularly those dealing with specific food industries.

In order to bring about a better understanding between committee members regarding the work to be covered and the manner in which the material is to be presented, a conference of 8 members of the committee has been arranged during the annual meeting. It is believed that during the conference plans can be completed for the work of the committee and the scope of the work outlined more clearly.

HARRY E. GORESLINE, PH.D., U. S. Department of Agriculture, Washington, D. C., *Chairman*
HAROLD S. ADAMS, Engineering Section
J. LLOYD BARRON, Engineering Section
GAIL M. DACK, M.D., Laboratory Section
V. L. ELLICOTT, M.D., Health Officers Section

* Report of the Committee.
COMMITTEE ON SANITARY PRACTICES IN THE FOOD INDUSTRY.
Organized 1947.

GEORGE J. HUCKER, PH.D., Food and Nutrition Section
LLOYD B. JENSEN, PH.D., Food and Nutrition Section
CYRIL K. JOHNS, PH.D., Laboratory Section
WALTER L. MALLMANN, PH.D., Laboratory Section
JOSEPH C. MOLNER, M.D., Health Officers Section
E. H. PARFITT, Laboratory Section
PAUL S. PRICKETT, PH.D., Food and Nutrition Section
PAUL F. SHARP, PH.D., Food and Nutrition Section
MARION F. TRICE, Engineering Section

Report of the Archivist, 1948

Laboratory Section

THE Section is indebted to Dr. Edmund K. Kline and, more recently, to Dr. Geoffrey Edsall, as *Secretary*, for maintaining the regular deposit in the archives of the minutes of the Section Council and of reports on Section Meetings. Dr. Friend Lee Mickle deposited copy of the minutes of the final meeting of the Section Coördinating Committee on Standard Methods, held October 8, 1947; and also copy of Dr. Robert S. Breed's resignation dated October 1, 1947, as *Chairman* of the Editorial Committee of the Standard Methods for the Examination of Dairy Products, the ninth edition of which has now been published. Dr. Breed's review in this letter of his connection with the work from 1909 is a pertinent archival note. A further deposit from Dr. Kline during the year is a letter from Dr. Mazÿck P. Ravenel, written September 23, 1941, with recollections of various notable figures in the field of bacteriology during the past fifty years.

Other members of the Section have also remembered the archives. Throughout the year scattered replies were received to the 1947 canvass of activities related to World War II. Photographs were given by Dr. Thomas A. Hart, Roosevelt College, Chicago, and Dr. Gustave J. Dammin, Washington University School of Medicine, St. Louis, and Director of Laboratories, Barnes Hospital. Dr. Dammin called special attention to the U. S. Army film, "Army Medical Laboratories." He was technical adviser for the film and asked that arrangements be made for its presentation in the film displays sponsored by the Association at the Boston meeting. It shows many excellent scenes of Army laboratories, and Dr. Dammin believes it contains material of value in relation to the archives of the Section. One of Dr. Dammin's interesting photographs, taken in 1944, is of the laboratory of Dr. Seagrave's hospital in Burma serving Chinese troops.

A valuable unit of the archives is the collection of photographs and biographical records of the officers of the Section. I thought it might interest you to see how this collection is maintained, so a simple exhibit has been made of the photographs of the officers at the time of the previous meetings of the Association in Boston in 1905 and 1922: In 1905, Dr. William H. Park, New York, Chairman; Dr. Harry W. Clark, Boston, Vice Chairman; Dr. John J. Fulton, Baltimore, Secretary; Dr. H. D. Pease, Recorder: in 1922, Dr. Frederick F. Russell, Chairman; Dr. A. Parker Hitchens, Vice Chairman; Dr. John F. Norton, Secretary.

Also shown in the exhibit is a program of the 33rd Annual Meeting, September 25–29, 1905, in Boston. Dr. Theobald Smith was the first Chairman of the Laboratory Section after its formal organization in 1900 and in the program of 1905 is found one of his now historic contributions, "The Fermentation Tube in the Study of Anaerobic Bacteria with Special Reference to Gas Production and the Use of Milk as a Culture Medium."[1] His paper was followed by one by Dr. Oskar Klotz, Montreal, on "Temporary alteration of character in an organism belonging to the colon group,"[2] which Dr. Smith discussed. Among the collection of papers received from Dr. Pease, Re-

corder, and which are the body of early archival material available, it was interesting to recognize Dr. Smith's original pencil note of this brief discussion [2a]:

"Dr. Klotz's paper is very interesting and suggestive. Much is still to be done to determine how much bacteria may vary under changing conditions. My own observations of a large number of cultures of *B. coli* and its variants lead me to regard the gas production and gas formula as a very stable function. I have never seen any change in cultures in my hands, although I have kept them for years. It seems, however, as brought out by Dr. Klotz and in an earlier paper by Mr. Fuller, that the gas production of the colon bacillus may be temporarily aberrant when the organisms have been in an untoward environment. Whether the character can be wholly altered by a persistence of such environment is a question of very great importance."

The deaths of the following members of the Section are recorded with regret:

Karl R. Bailey, M.D., Boston, Mass.
Elected member 1946

Fred Boerner, M.D., Philadelphia, Pa.
Elected member (1943)

Elizabeth C. Brown, Columbia, Mo.
Elected member 1938; Fellow 1942

Harly A. Bunner, Atlanta, Ga.
Elected member 1946

Hyman M. Charm, Sc.D., Bronx, New York, N. Y.
Elected member 1937

Joe Davis, Seattle, Wash.
Elected member 1943

Conrad Kinyoun, Savannah, Ga.
Elected member 1926, Fellow 1933

Leslie A. Sandholzer, Ph.D., College Park, Md.
Elected Member 1940, Fellow 1944

REFERENCES

1. Smith, Theobald, Brown, Herbert R., and Walker, Ernest L. The Fermentation Tube in the Study of Anaerobic Bacteria with Special Reference to Gas Production and the Use of Milk as a Culture Medium. *Public Health: Papers and Reports Presented to the Laboratory Section at the Thirty-third Annual Meeting of the American Public Health Association*, Boston Mass., September 25, 1905. *Transactions, 31*, Pt. II 229–240, 1906.

2. Klotz, Oskar. Temporary Alterations of Character of an Organism Belonging to the Colon Group. *Public Health: Papers and Reports Presented to the Laboratory Section at the Thirty-third Annual Meeting of the American Public Health Association*, Boston, Mass., September 25, 1905. *Transactions, 31*, Pt II 35–39, 1906.

(a) Discussion by Dr. Theobald Smith, p. 249.

ANNA M. SEXTON, Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.

Commission for the Study of Biological Stains*

Laboratory Section

DURING the past year the Stain Commission has completed the removal of its activities from the New York State Agricultural Experiment Station in Geneva. Laboratory activities, both chemical and biological, are now carried on in the University of Rochester, and business and editorial offices are located in a business office in Geneva.

Dr. H. J. Conn, the President of the Commission, who has served so faithfully since its inception retired from the Staff of the Agricultural Experiment Station, May 1, 1948, and is devoting his full time to Stain Commission activities. During the coming winter Dr. Conn plans to spend several weeks on a trip to the West Coast to promote the activities of the Commission.

Routine examination and certification of new lots of stains before they are placed on the market has been continued as heretofore, approximately 65 lots of dyes being completely tested both chemically and biologically prior to certification in the past year.

It has been possible to obtain a number of German made stains subsequent to the war and many of these have been tested in the laboratories of the Commission in comparison with present-day dyes of American manufacture, with the American stains showing a general superiority. This work will be continued and reported in more detail at a later date.

Publication activities have also been continued along the lines followed in past years. *Stain Technology*, the quarterly journal, has become a problem because of the large amount of excellent material that is presented for publication. Until the present time about 150–160 pages were published annually. This year's volume will amount to about 232 pages, an increase of some 44 per cent. It has been decided to increase the size though this will make it necessary to raise the subscription price by $1.00 per annum.

A new Second Edition of the book *History of Staining*, by Dr. Conn and collaborators was published early in the fall of 1948 after the text had been out of print for over a year. An index of all material contained in the various leaflets on Staining Procedures was prepared and published, in March, 1948. One leaflet has been revised and reissued this year (*Animal Histology; Miscellaneous Methods*).

Research grants have been continued and at present are being given to three universities: Rochester, Northwestern, and McGill. Additional grants for research are possible.

Income from the various projects of the Commission exceeded operating expenses by a comfortable margin as in several immediate past years. However, research grants are not considered as a part of operating expenses and have in part been paid out of capital funds of the Commission, reducing these funds by about 2 per cent.

Once more members of the American

* Report of the Association Representative. Published Report, *Year Book* 1947–1948.

Public Health Association who are interested in problems dealing with stains as related to bacteriology are invited to seek the coöperation of the Stain Commission. Perhaps we can jointly work out a program for further investigations of your problems.

EDMUND K. KLINE, DR.P.H.,
Association Representative on the Biological Stain Commission

Camps and Camping*

Maternal and Child Health Section

I. WHAT CONSTITUTES RECREATION CAMPS

THE following shall be regarded as constituting recreational camps.

All places of camping character, as the term is commonly understood, which are utilized wholly or in part for recreational purposes and operated for a period of 30 days or more during one or more seasons of the year, whether continuously or otherwise, and which receive the patronage, whether paid or not, of five or more children who are not bona fide personal guests in the home of an individual, and any of which children, not accompanied by parent or guardian, is under 18 years of age.† Such patronage may be for recreational purposes solely or for a combination of recreation, health, and instruction, and may be for profit or under philanthropic or charitable auspices.

II. CAMP SITES

A. *Camp Location and Upkeep*

1. Camps should be located on suitable and well drained grounds of sufficient area adequately to meet needs, free from natural hazards such as mosquitoes, ticks, poisonous snakes, etc., that may be prevalent in the area. The soil should be suitable for the disposal of wastes by the method contemplated.

Roads, trails, and walks for the use of the camper and public, in connection with the camp, should be so guarded or posted as to insure safety.

The premises and equipment should at all times be kept in a clean and safe condition and free from vermin.

Areas immediately adjacent to buildings, council rings, paths, etc., should be freed of poison ivy, poison oak, etc. Some new chemicals such as ammate or 2,4-D are highly efficient for this purpose.

III. BUILDINGS, SLEEPING QUARTERS AND EQUIPMENT

1. All buildings, tents, vehicles, and grounds should be maintained in a clean, sanitary condition at all times.

2. Adequate sleeping place should be provided for each person. No room used for sleeping purposes should have less than 600 cu. ft. of air space for each occupant.

3. Ventilation in sleeping quarters, kitchens, dining rooms and mess halls should provide a reasonable movement of air at all times and assure the comfort and protection of the occupants.

4. The doors, windows and other outer openings of kitchens, dining halls, and sleeping quarters should be adequately screened, where health or comfort of the campers warrants it.

5. All floors should be sufficiently raised above the ground so that they will remain dry.

6. The area of window space in each sleeping room should be equal to at least one-eighth of the floor area of the room.

7. Windows of sleeping rooms should be so constructed that at least half of each window can be opened.

8. Any permanent buildings in which persons are housed should provide ready exit in case of fire. Fire extinguishers or other fire fighting apparatus must be

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* Report of the Committee.
COMMITTEE ON CAMPS AND CAMPING.
Organized 1942.

† This refers to the organized type of camp with permanent or semipermanent facilities.

adequate and should be placed where easily accessible. When chemical extinguishers are used, they should be inspected and tested immediately before the opening of camp and at least every 2 months during the camping season. Where water buckets or pails of sand are provided, they should be checked weekly. Water buckets should be protected to prevent mosquito or other insect breeding. Two suitable exits should be available for each semi-permanent or permanent structure.

IV. ADMINISTRATIVE PERSONNEL

1. There should be a responsible person in charge of the camp, present in the camp at all times so long as campers are present.

2. Some member of the camp staff should be charged specifically with the responsibility for the sanitation of the camp.

3. In general, the camp nurse or physician is too busy to carry on the additional work involved in health education. This is best done by group leaders or counselors. Special training may be necessary for these leaders. Likewise, the routine cursory daily check for obvious symptoms of illness can best be given by the group leaders or counselors, provided they have had some instruction from the camp physician.

V. CAMP WATER SUPPLY

1. The camp director should observe the local health laws concerning camp water supply.

2. The water supply for drinking and culinary purposes should be adequate and safe and approved by local or state health departments prior to the opening of camp. When water from a public supply is carried in, clean containers should be used. Such transportation should be done under the direct supervision of a member of the camp staff. Containers so used should be used for no other purpose, should be equipped with covers that protect the lip of the container, and should be sterilized as necessary. The water should contain at least 0.1 p.p.m. of free residual chlorine or some equally effective disinfectant at the time it is drawn in camp for consumption. Containers in camp should be fully protected against contamination and equipped with spigots or some similar method for drawing off the water. The use of a common drinking cup should be prohibited. If drinking fountains are provided, these should be of sanitary design and construction.

3. Wells and springs should be so located as to avoid any chance of contamination from buildings or other sources, and should be adequately protected. Such sources should be properly encased in masonry or tile, this to extend well above the surface of the ground, and a tight covering provided. Removal of water by dipping or drawing by a bucket is prohibited. Prior to the selection of springs or the construction of wells, advice should be sought from the local health authorities.

4. Connections between approved and non-approved sources should not be permitted. If a non-approved supply is used for any purposes, it should be separated from the approved supply and should be used in such a way that use for drinking or culinary purposes will be prevented. Non-approved supplies might be used for such purposes as flushing toilets. The water supply system should be examined by a competent person to locate and eliminate any possible danger, such as back siphonage. The use of lead pipe as conducting medium is prohibited.

VI. BATHING BEACHES AND SWIMMING POOLS

1. Swimming and bathing waters should be controlled so that they are in accordance with local and state regulations. "Recommended Practice for Design, Equipment and Operation of

Swimming Pools and Other Public Bathing Places,"[1] published by the American Public Health Association, is a dependable guide. The swimming area, including the drainage area feeding the body of water used for swimming should be free of possible sources for pollution, such as overflowing cesspools, open privies, etc. The responsible health department should be called upon to assist in determining the safety of the area. For a discussion of sampling, see the reference cited above. The bottom of natural swimming areas should preferably be of sand or gravel, free from excessive mud or silt deposit or vegetation. Shores should be kept free from any litter or unsightly material.

2. *Supervision* — Every place where swimming is conducted should be under the direction and supervision, during all swimming periods, of a competent and qualified person who should require careful observance of sanitary regulations. Such person should establish an individual check-in, check-out system for all swimmers. The "buddy system" is recommended particularly for children and non-swimmers. In the case of artificial or partly artificial pools the supervising person should also be responsible for a daily record concerning the volume of new water added, the time of cleaning the pool, and the quantity of disinfectant added. Swimmers should be inspected for skin infections, open lesions, etc., and should have a cleansing shower before entering the pool. This is particularly important in the case of artificial pools, usually much smaller than natural bathing areas.

3. All camps maintaining swimming facilities should provide adequate, well kept life saving equipment consisting of a nearby unlocked boat with oars and life belts, life ring with line, grappling hooks, long pole with hooks, ropes, and like equipment instantly available and in good condition. Red Cross standards or equivalent are to be observed.

4. Instructions should be given against urinating or spitting, or washing animals in the waters of bathing beaches. Adequate toilet facilities should be available at the bathing area. Care must be exercised to prevent pollution of the area by these toilets.

VII. TOILET AND SEWAGE DISPOSAL FACILITIES

1. The toilet facilities and methods of sewage disposal should be approved by the local or state department of health. There should be provided convenient and adequate toilet facilities, so located, constructed, and maintained that they shall not be offensive to the users, becoming the breeding place for flies, nor by leakage or seepage offer a possible contamination of adjacent waters. Sewage disposal systems should not allow seepage of sewage to the surface of the ground. Defilement of camp grounds by excretions should not be permitted to occur.

2. Where privies are used the construction shall involve a pit more than 2 ft. deep. Both the shelter and the pit shall be made fly tight; self closing lids on the seats shall be provided, and clean and sanitary conditions maintained at all times. No such pit should be permitted to become filled to less than 1 ft. below the surface of the ground. Privy contents should be removed as often as necessary and disposed of in a satisfactory manner.

If temporary, the pits should be filled in when contents arise to within 2 ft. of the surface of the ground. The surface of the pit contents should be thoroughly sprayed with oil or some other heavy disinfectant before back-filling. If permanent pits are used, i.e., concrete or brick, the contents of these pits should be dumped into a public sewerage system, if possible, otherwise buried. Care should be exercised during this entire emptying process to prevent pollution from utensils used, spillage, etc.

3. Chemical toilets, making use of caustic alkali, may be found preferable to privies. The accumulated fluid should be so disposed of underground that no hazard of pollution of any water supply or of any body of water will be entailed.

4. *Since proper size and construction* is essential for the satisfactory operation of a septic tank or cesspool, a public health engineer should be consulted in the construction of sewage disposal systems of these types.

5. No privy shall be within 100 ft. of any place where food is prepared or served. No privy, cesspool or septic tank should be within 75 ft. of any lake, pond, or stream, or within 100 ft. above or in *direct* line of drainage thereto of any well or spring.

6. Separate toilets should be provided for each sex, if both are to be in camp at the same time. At least eight seats per 100 and four urinals per 100 boys additional should be provided. Since diarrheal outbreaks may occur, increasing enormously the demand for toilet facilities, the camp staff must be ready to provide additional, satisfactory improvised facilities, as needed, until the emergency has passed.

VIII. GARBAGE AND WASTE DISPOSAL

All garbage and kitchen wastes shall be deposited in covered metal receptacles which shall be regularly emptied and cleansed, and the contents burned, buried or otherwise disposed of in such a manner as not to give rise to offense or to permit access of animals or flies. Burial is the most satisfactory method of disposal under crude conditions.

During summer months garbage cans should be emptied daily and washed before return to the garbage rack. Access to the contents of garbage cans by rodents or other wild animals should be prevented. Care must be taken to prevent the garbage rack or storage area for the garbage cans from becoming an insect breeding area or a nuisance because of spillage. Emptied tin cans should be rinsed to remove any possible food for insects, and then crushed to prevent the accumulation of water that might serve as a mosquito breeding accumulation.

IX. FOOD AND FOOD HANDLING

Adequate provision should be made for the sanitary storage, handling, protection, and service of all food supplies. Refrigeration for perishable products should be provided. Cooks and all food handlers should keep clean and wear clean clothing. No food handler, when ill, should work about the kitchen, except as permitted by a physician. In the case of food handlers, it is suggested that a health examination be given by the camp physician or that a very specific questionnaire be prepared so that assurance can be had that a thorough and meaningful physical examination has been given. Persons who have ever had typhoid fever should not be employed in the kitchen or handle food or food materials until it has been definitely determined by appropriate tests that such persons are not typhoid carriers.

X. MILK AND CREAM

Milk and cream and soft drinks supplied to camps should be produced and handled in accordance with the regulations governing, and should conform to the requirements respecting composition, labeling, and bacteria content. Only pasteurized milk and cream should be used.

XI. MEDICAL AND NURSING CARE

At all regularly established camps there should be:

1. A definite written arrangement by the camp management with a physician licensed to practice in the state to be on call at all times for medical service and to supervise first aid and nursing service in the camp.

2. Someone, either the camp manager or an employee designated for this purpose, in the camp at all times, who is especially trained in first aid service.

3. Adequate provision for first aid attention on all trips out of camp.

4. Standing orders issued by the physician to the person responsible for first aid service to be followed in the absence of the physician.

5. If at all possible, a telephone in camp, or available within 10 minutes' travel time therefrom.

6. Some means of quick transportation in case of emergency.

7. In all camps operated for children who are not physically normal, or at which the total number of persons, including campers, employees, and administrators, is at any time greater than 75, there should be employed: (1) a registered professional nurse, (2) a medical student who has satisfactorily completed 2 years in medical school approved by the state board of registration in medicine, or (3) a physician in residence. For the purpose of this section and of section 3, "registered professional nurse" should mean one who has qualified for such service under the law of the state, and at camps in which this service is in lieu of (2) or (3), above, she should be so qualified.

XII. COMMUNICABLE DISEASES TO BE REPORTED

All cases of communicable diseases occurring in camp should be immediately reported in accordance with regulations of the local health office. Such report in accordance with local or state regulations should include the name and home address of any individual in the camp known to have or suspected of having such disease. The method of isolation should be one approved by the local health officer. The person in charge should not allow the patient to leave or to be removed without permission of the health officer.

XIII. OTHER ILLNESSES

Whenever there should occur in camp any outbreak of suspected food poisoning or an unusual prevalence of any illness in which diarrhea, fever, sore throat, vomiting, or jaundice is a prominent symptom, it should be the duty of the person in charge of the camp to report immediately the existence of such an outbreak or disease prevalence to the local health authorities.

XIV. HEALTH EXAMINATION

The pre-camp examination, given by a physician, should ideally be made far enough in advance of the camp season so the remediable defects found, and necessary immunizing, can be taken care of before the opening date. This should always include smallpox, tetanus, and diphtheria protection and other indicated immunizations depending upon the location of the camp. In addition to this, there should be a brief examination shortly after arrival at camp by a registered nurse or physician, for early symptoms of contagion.

XV. HEALTH EXAMINATION OF STAFF

All members of the staff should have a complete health examination before camp opens. They should understand and be prepared to accept the responsibility of the physician or the nurse in relation to their own health. It is recommended that stool specimens of all food handlers be examined. Many state health departments will make these examinations without cost.

XVI. INFIRMARY

The camp administration is responsible for provision for adequate and safe infirmary facilities, including isolation. It is essential that the physician or nurse be sure these facilities are available prior to the opening of camp. Where quarters have not been provided for an infirmary, it is suggested that space be arranged apart from the living quarters,

and preferably in quiet surroundings. The number of beds needed will depend upon the number of campers, their age and sex, duration of stay, and whether the camp is serving handicapped children. One bed to 15 campers is suggested as a minimum. Furniture should be simple, easily cleaned, and consist only of the necessary items.

BASIC EQUIPMENT AND SUPPLIES FOR AN INFIRMARY

3 enamel wash basins
1 irrigating can and assorted tips
2 kidney basins (curved)
2 bed pans
sterilizer for boiling equipment
2 bulb syringes
2 hot water bottles
2 large rubber sheets
2 small rubber sheets
1 tourniquet
paper cups
wooden tongue depressors
wooden applicators
1", 2", and 3" bandages
triangular bandage
½", 1", and 2" adhesive (water proof)
3" x 3" sterile gauze compresses
band aids
sanitary pads and belts
yellow and white soap
sterile absorbent cotton
1 hemostat
1 nail scissors
2 bandage scissors (one large—one small)
1 scalpel with blades
½ dozen bulb pipettes
½ dozen test tubes
glass slides
1 thumb forceps (toothed)
1 tweezers (needle point)
4 medicine glasses
2 medicine droppers
Luers syringes—1 c.c. and 2 c.c.
20 c.c. syringe for convalescent serum
hypo needles (different sizes)
suture material and suture needles
needles (for removal of splinters)
safety pins
alcohol lamp
splints (different sizes)
flashlight
dishes, eating utensils, etc.
necessary linen
height and weight scale
American Red Cross First Aid textbook
alcohol 70%
tincture of green soap
tincture of iodine 3½% and/or 2%
mineral oil
milk of magnesia
Aspirin (Gr. V)
sodium bicarbonate tablets (Gr. V)
calamine lotion with phenol 1%
ampules of tincture of iodine
aromatic spirits of ammonia
boric acid crystals
magnesium sulfate crystals
paregoric
phenobarbital tablets (Gr. ½)
ointment for burns
5% sulfathiazole ointment (ophthalmic)
yellow oxide of mercury 1% (ophthalmic)
boric acid ointment
inhalation compound (Tr. benzoin base)
larkspur or kerosene
ammoniated mercury ointment 5%
adrenalin ampules
cocoa butter
talcum powder
cold cream
salt
vaseline
penicillin and sulfa preparations on suggestion of physician

REFERENCE

1. Recommended Practice for Design, Equipment, and Operation of Swimming Pools and Other Public Bathing Places. An Official Report of the A.P.H.A., 1942 (new edition in press).

MILTON I. LEVINE, M.D., Bureau of Child Hygiene, City Health Department, New York, N. Y., *Chairman*
HELEN LEIGHTY
L. B. SHARP

Community Organization for Health Education*

Public Health Education Section

THIS committee is successor to the old Committee on Community Organization for Health Education which went out of existence after publishing a report under the same title in 1941, based upon a study of communities which had developed particularly successful organization, between public health, school health, and voluntary health agencies. That report had three reprintings and was distributed in the number of 15,000 copies. It had not seemed wise to seek further reprints of such an old report and the present committee was appointed in 1946, to explore the desirability of further studies, reports, or Section activities in this field.

About 100 members of the Section indicated on post cards that they preferred to work with this committee. There was a discussion of the whole problem at the 1947 A.P.H.A. meeting. The attached questionnaire was sent to the whole committee in April, 1948. The replies were summarized and reviewed by the Chairman with the assistance of Vivian Drenckhahn and Aubrey Mallach. The following report summarizes the thinking of the committee.

I. The following types of community organization were mentioned in committee discussions and on questionnaires. (The phraseology here used is that of a formal paper presented by the Chairman at the 1948 A.P.H.A. meeting on "Health Education and Community Organization.")

Local level:

1. A school health council in which professional people in health and in education join with lay people in planning for health promotion, but restrict their activities to problems of school health.

2. The health council or health education committee of official agencies through which departments of local government, concerned with health, coördinate their health education and sometimes other health activities.

3. The health council of voluntary and official health agencies, established either independently or as a health division of a council of social agencies where official and voluntary health activities are planned and coördinated in the absence of the groups which are consumers of health service.

4. The health council representing official and nonofficial health agencies and also other civic or health-consumer groups, who work together in planning and developing health activities.

5. The health council made up of lay individuals and lay organizations only, which plan and promote health activities with the aid of official and unofficial health groups, bringing in professional consultants to aid in their discussions as necessary.

6. Welfare councils of lay and professional groups similar in composition to group 4, but organized to consider all problems related to the public welfare.

State level:

1. A state health council representing only the official agencies.

2. A state health council representing both official and voluntary state-wide health agencies.

3. A state health council representing official and voluntary health agencies together with lay and civic groups, the scope of which tends to broaden.

National level:

1. National conferences of official health agencies, like the Surgeon General's Conference and the Conferences of State and Provincial Health Officers.

* Report of the Committee.
COMMITTEE ON HEALTH EDUCATION AND COMMUNITY ORGANIZATION.
Organized 1946.

2. The National Health Council, made up primarily of the national voluntary health agencies.

3. The National Conference for Coöperation in Health Education, made up of national official and voluntary groups in health and in education, and concerned only with health education problems.

4. The National Committee of Health Council Executives, made up of the executive officers of local health councils, for a consideration of council programs and methods.

5. The occasional conferences of specialists and representative groups called by the national government, like the recent National Health Assembly and the various White House Conferences on specific health problems.

II. The committee suggested several references to books and papers on the subject of Community Organization. The most pertinent and helpful were:

1. American Public Health Association. *Community Organization for Health Education.* New York, 1790 Broadway, 1941, 120 pp. (This report is now out of print, but it has been widely distributed.

2. Federal Security Agency. *The Nation's Health—A Ten Year Program.* Washington, D. C., 1948. (pp. 179–186 deal with Community and State Planning. It is expected that a special publication will be issued on this subject.)

3. National Health Council. *Stepping Stones to Health Councils,* 1948, 30 pp.

4. Association for the Study of Community Organization. *Community Organization,* 60 Farnsworth Avenue, Detroit 2, Mich. 1947. 28 pp. (25 cents.)

5. Iowa Community Development Workshop. *Guides for Building Communities.* Des Moines Community Development Committee, Iowa Council for Better Education, 415 Shops Building, Des Moines, Iowa, 1947. (Mimeo. 31 pp. 25 cents.)

6. Washington State Department of Health. *Health Councils for Washington.* Smith Tower, Seattle, Wash., 1947. 11 pp.

7. Michigan Council on Adult Education. *Organizing a Community Council.* Lansing, Mich. Superintendent of Public Instruction, 1944. 22 pp.

III. Several problems were suggested for committee discussion and considered, namely:

a. The relationships of official agencies
b. The desirable nature and extent of lay participation
c. The functions of the health educator in community organization
d. How to organize a community
e. The coördination of voluntary health agencies
f. Hospital participation
g. Education of the public concerning existing agencies
h. How to enlist lay interest
i. The evaluation of health education in the community
j. The relationships of the County Medical Society
k. What are the training opportunities in community organization in schools and colleges
l. How are leaders found
m. How is group interest maintained

IV. The committee mentioned several projects and studies in Community Organization which are under way. However, field contacts and the discussions at the National Health Assembly showed that the projects named by the committee are only a few of those actually under way. For that reason this partial list is not included in the report.

V. Several possible activities were suggested for the committee. Many of these activities, however, are being carried forward by some group at present, as indicated below.

The Committee suggested:

a. The development of an evaluation schedule for Community Organization. (Community Chests and Councils is developing such a schedule and the National Tuberculosis Association is setting up a self-evaluation schedule for Tuberculosis Associations. This schedule, however, includes community relationships.)

b. The development of a Newsletter on Community Organization. (The National Health Council will issue a monthly bulletin, dealing largely with this subject.)

c. Recommendation from the committee to universities that they provide refresher courses for health educators. (This would hardly seem an appropriate function for the Section committee.)

d. A survey of the instruction which health educators now receive and should receive in professional schools regarding Community Organization. (This assignment would seem more appropriate for a new Section committee concerned with this single project and with a membership selected in relation to the project.)

e. A survey of existing community organization with the preparation of community case studies in this field along the lines of the published report of the old committee. (The National Health Assembly reviewed several community projects of this type, and will presumably publish reports concerning them. Other similar projects are being reported in the literature. There is now an Association for the Study of Community Organization. The committee does not believe it desirable to reprint the old report, although it has been very valuable. On the basis of the facts just cited, it seems desirable to await the publication of the reports of the National Health Assembly in order to see whether that together with currently appearing articles meet the need for studying and reporting progress in community organization for health.)

RECOMMENDATIONS

It is recommended:

1. That this committee, which has explored the situation, be discontinued at this time; but that the Section consider one year hence the creation of a committee to undertake a survey and case studies, if enough is not being done in this direction outside the Section.

2. That the Section appoint a committee to study present and desirable instruction in community organization as a part of the training of Community Health Educators.

3. (This recommendation comes from the discussion on community organization by the committee at the 1948 A.P.H.A. meeting as well as being reflected in the correspondence with the committee itself.) That an opportunity for a discussion on health education in relation to Community Organization be provided by the Section at the next annual meeting of the A.P.H.A.

C. E. TURNER, DR.P.H., 120 Broadway, New York, N. Y., *Chairman*

(This report was presented orally at the Section meeting in Boston, November 11, 1948.)

QUESTIONNAIRE

April 5, 1948

To: A.P.H.A. Committee on Community Organization in Health Education

From: C. E. Turner, Chairman
120 Broadway, New York, N. Y.

You will recall that the committee voted at Atlantic City to seek this year to define the problem, to find out what agencies are now at work on problems of community organization and to suggest a specific program for the committee. As a responsible member of the committee, you are asked to contribute your thinking on the following points and to send your reply to the Chairman *not later than one week* from the day you receive this memo.

1. What types of community organization exist which are concerned with health education? The following were suggested:
   (1) A Health Education Committee of health agencies.
   (2) A Health Council of Voluntary and Official Health Agencies.
   (3) A Community Health Council representing both lay and professional groups.
   (4) A Council of Social Agencies (with a health committee) to consider problems of welfare as well as health.
   (5) A Community Council of lay and professional groups to consider all problems related to welfare of the people.

   Please change titles in the above list if needed.

   Will you add any others?

   Will you define them?

2. (a) What agencies on the national level are concerned with community organization in any form?
   (b) What published statements or papers do you know of dealing with health education in relation to community organization?
   (c) What studies in community organization do you know of which are under way?

3. Please suggest five members of this committee to serve as an Executive Committee.

4. Please list below the problems of community organization in relation to health education which you think the committee should consider.

   (Some that have been suggested are (1) The relation of official agencies; (2) Lay participation; (3) The function of the health educator. What are the others?)

5. List the things you think the committee should undertake. (Give your suggestions for committee procedure from this point.)

6. What states, cities, towns, counties or communities in the U. S. have done the best job in community organization for health and health education? (Give the names of responsible persons in each case.)

Planning for Health Education*

Public Health Education Section

THE Committee on Planning for Health Education is an outgrowth of a Committee on Post-war Planning, which was appointed following a meeting of the American Public Health Association in 1945. The first report of the committee brought to the Section the areas of content in which planning would need to take place following the war. To implement this overall program of content, as it was given in 1946, the committee presented to the Section in 1947 an estimate of the number of personnel that would be needed to carry out an adequate program over the nation. This estimate was based first on a uniform standard of one health educator to each local health department, proposed by the Committee on Local Health Units for the Nation, and one additional health educator for each 100,000 personnel in jurisdictions serving over that number, and estimates submitted by as many of the states as were willing to project plans for carrying on their health education program.

The committee is very much gratified to see that some of its proposals are being accepted by the profession and are appearing in printed statements by other groups in the public health profession. For example, the new Report of the Committee on Professional Education on the *Qualifications of Community Health Educators* summarizes the estimates of personnel as given by the committee report of 1947. Also, in the Report to the President on *The Nation's Health—A Ten Year Program*† will be found the following paragraphs:

> An extension service for health, comprising health educators attached to local, State, and Federal health agencies, could perform invaluable service in helping communities and States to organize citizen health councils. Such a service, I believe, would do much to assure the success of the national program for better health and to help communities make good their deficiencies in resources and coördinate their health services.
>
> As a Nation we would probably need one health educator for every 50,000 population—a total of some 2,800 workers. Voluntary agencies and schools will need hundreds more. We should be able to train enough workers for effective extension services in considerably less than the next 10 years if we move promptly and forcefully toward this end.

In addition, the material on local health units indicates that the following personnel are essential to effective local public health organization:

1 full-time medical health officer per unit
1 additional full-time public health physician for each 50,000 population
1 full-time nurse for each 2,000 to 5,000 population
1 sanitarian for each 15,000 population
1 health educator for each 50,000 population
1 clerical worker for each 15,000 population

Additional professional and technical workers for each of the special programs, in the ratio of one per 50,000 population, except that dentists, dental hygienists, veterinarians, and laboratory workers would be employed full time only in units that served at least 150,000 persons.

The acceptance of these estimates of the committee are gratifying, and encourages us to continue in our work of developing material that may be useful

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* Report of the Committee.
COMMITTEE ON PUBLIC HEALTH EDUCATION PLANNING.
Organized 1945 as Post-war Planning in Public Health Education.

† By Oscar R. Ewing, Federal Security Administrator.

in pushing forward satisfactory goals in public health education.

In addition to the preparation of these estimates, in 1947, the committee explored new areas in which planning was needed. As a result of that exploration, six new subcommittees were formulated to work on the several areas considered important. The first subcommittee was asked to obtain data from the 19 states that had not reported at the time of the 1947 Annual Meeting of the Association, and thus make the final estimates more realistic. The second was to explore the types of personnel that are needed in various population units and administrative groups. The third was a committee on the philosophy of health education. It was asked to prepare answers to such questions as these: "Toward what are we moving in health education? Is our conception too narrow? How can we plan for future needs in the broad realm of human welfare?" The fourth was to study what types of personality traits are needed in health educators. The fifth was asked to propose a minimum salary schedule for various health education personnel. The sixth was to develop proposals that would aid in the maintenance of a high caliber of personnel in the field, and was asked to consider such problems as salary, recruitment, undergraduate programs, and how can the health educator's job be made more satisfying.

During the year, these committees have been busy—some more energetically than others.

There is published elsewhere in this issue, the first report of the Subcommittee on Salary for Health Education Personnel, which has been accepted and adopted by the committee. We recommend its adoption by the Section Council. The Subcommittee on Personnel has developed one questionnaire and is in the process of revising that questionnaire in order to send it to official health agencies, official education agencies and voluntary health agencies. It is believed that the material from this questionnaire will give us valuable data in understanding our future needs in health education.

The report of the subcommittee, on the types of personality that health educators should have, submitted a report. The committee did not find its actions fruitful, and it is recommended by the overall committee that this subcommittee be abolished, with thanks, for their exploratory efforts.

The committee on securing further data from the states was unsuccessful in obtaining replies from any other than the 29 states from which we had already heard. Therefore, this committee has been discharged with thanks.

The Committee on General Philosophy has done some careful thinking but is not ready to report. It is hoped that they can continue during the coming year, and that a very substantial report may be obtained from them in 1949.

Following these committee reports, those present at the committee's meeting were asked to explore additional areas of planning. Four new areas were suggested. They are:

1. What is being done in organized field training for apprentices, externs, aides, etc.? What is desirable in this field, and how can field work be offered when schools are in session?
2. Evaluation of health education
3. How to interpret what health educators do, to the public health staff and to others
4. Standardization of job nomenclature and job descriptions for each named job

It is proposed to set up four new subcommittees to work on these new subject areas. The members who were present at the session were asked to indicate on which of these subcommittees they would like to work, and to volunteer if they were interested. Over half of those present volunteered to serve on one or more of the committees.

It is the recommendation of the Committee on Planning for Health Educa-

tion that it be permitted to continue its work along the lines indicated in this report, and that the membership be informed of the areas of planning in which the committee is active. It is also recommended that the membership be invited to participate in drawing up the reports for 1949 on the areas of planning that have been suggested.

The Chairman wishes to record to the Section Council his appreciation for the splendid work that has been carried on by a large number of the members of the Section.

MAYHEW DERRYBERRY, PH.D.,
U. S. Public Health Service,
Washington, D. C., *Chairman*

Proposed Levels of Recommended Starting Salaries for Six Grades of Positions for Community Health Educators*

Public Health Education Section

THE Subcommittee on Salary for Health Education Personnel is a subdivision of the Committee on Health Education Planning of the Public Health Education Section, American Public Health Association. The Subcommittee was created at the 75th Annual Meeting in Atlantic City, N. J., October 7, 1947.

Members of the subcommittee who have served during the reporting year, are: Mayhew Derryberry, Ph.D., Washington, D. C.; Catherine Dees Hidy, M.P.H., Little Rock, Ark.; Rosemary M. Kent, Chapel Hill, N. C.; Edith R. Lindly, M.P.H., Fresno, Calif.; S. Elizabeth Lovell, M.S.P.H., Chapel Hill, N. C.; and Alfred K. George, M.D., Cincinnati, Ohio, *Chairman.*

The subcommittee, in an effort to correlate efficiently its activities with the work done by other A.P.H.A. committees in related fields, has frequently been in contact with the Committee on Planning for Health Education (*Chairman:* Mayhew Derryberry, Ph.D.), the Subcommittee on Salary Study of the Committee on Professional Education (*Chairman:* William R. Willard, M.D.), and the Subcommittee on Investigation of Types of Health Education Personnel (*Chairman:* William Griffiths). The fine coöperation of these committees has been stimulating and very helpful to the activities of the Subcommittee on Salary for Health Education Personnel.

This report deals with the general salary situation concerning community health educators and especially with the consideration and fixation of appropriate levels of starting salaries. The report contains various pertinent recommendations and in particular it includes the tentative draft of a minimum salary scale for six grades of positions for community health educators. Classifications and qualifications to be required for these positions are indicated accordingly.

The report does not include considerations and suggestions relative to the salary situation of school health educators nor of various specialists working in the field of health education as writers, editors, public relations officers, research analysts, librarians, audio-visual specialists, exhibit designers and technicians, photographers, and others. However, the question of what should be the range of salary for health education personnel of these types not covered in this report is certainly of great concern to the Subcommittee on Salary for Health Education Personnel. Therefore, it seems advisable to discuss this matter and report on it in the near future.

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* Revised Report.

SUBCOMMITTEE ON SALARY FOR HEALTH EDUCATION PERSONNEL OF THE COMMITTEE ON HEALTH EDUCATION PLANNING.

Organized 1947.

THE EXISTING SALARY SITUATION AND THE IMPORTANCE OF APPROPRIATE SALARIES

The existing salary situation as it concerns public health workers and in particular public health education personnel has been reviewed carefully. In this respect, information transmitted by William R. Willard, M.D., of the Subcommittee on Salary Study of the A.P.H.A. Committee on Professional Education (William P. Shepard, M.D., *Chairman*) was highly beneficial. Another valuable contribution was made by Robert O. Yoho who circulated a questionnaire requesting the salaries of presently employed health educators. A third instructive source of knowledge was the survey on "Salaries of State Public Health Workers," published by the Federal Security Agency, U. S. Public Health Service, in February, 1948. Sincere thanks are expressed to the *American Journal of Public Health* and its esteemed Editor, Professor C.-E. A. Winslow for the publication of excellently selected informative material, presented so thoughtfully and efficiently in the *Journal's* section "Clearing House on Public Health Salary Information."

Without doubt, most salary surveys and salary schemes of more recent dates, with the possible exception of the federal payment system and a few others, indicate clearly the considerable underpayment of health educators. Apparently, it cannot be stated ardently enough again and again that careers in public health, including the field of public health education, would be much more attractive to many able individuals if these men and women would receive really adequate salaries.

In order to change the present detrimental situation and in an effort to explain the conditions so that things might be better understood by the public, it seems appropriate and timely to use some additional comparative methods of presentation. Salaries paid to health educators and to other public health officials should be compared with selected salary and wage scales for members of other professions and occupations including labor, without being too critical even of seemingly very generous wage scales. Such an endeavor would be of great benefit to public health educators as well as to other public health groups in their highly justified struggle for much needed improvement in their economic conditions.

THE FIXATION OF APPROPRIATE SALARIES

The fixation of appropriate salaries depends upon many factors, such as: general salary policies of the agencies concerned; the structure of general and special salary schemes; salary levels of certain other employees, in particular various public health workers, teachers, and social workers; the financial ability of agencies employing public health personnel; the power of taxation and the degree of taxation; the stability and the purchasing power of the currency; the general price and rent situation; and, in addition to a number of other factors, the public opinion acting as a forceful power if molded on the basis of accurate and skillfully imparted information of the public.

As to the question of remuneration, it might be generally advisable not to speak of salary increases at all but instead of salary adjustments as necessitated mainly by the effect of the formidable decrease of the purchasing power of the dollar and the effect of taxation on the amount of the "take home pay."

It is beyond the scope of this report to present complete model salary schemes covering such items as ascending salary ranges, salary increments, promotional increases, travel allowances, vacations with salary, retirement plans, etc. This report aims to show that, in order to combat underpayment, careful consid-

eration must be given in particular to the determination and specification of suitable levels of minimum starting salaries for the various groups of community health educators. In this connection it might be stated that, judged from a general as well as an individual standpoint, the most important salary level is that of the minimum starting salary of the beginner.

Considering the fact that the average weekly (40 hour) income of the 13,200,000 production workers in the nation's manufacturing plants increased to about $54 in August, 1948, and in view of wages for bricklayers amounting up to $3.65 per hour in September, 1948, it seems inadvisable and detrimental to the group to recommend an amount less than $3,600 as minimum starting salary for community health educators with M.P.S. degrees.

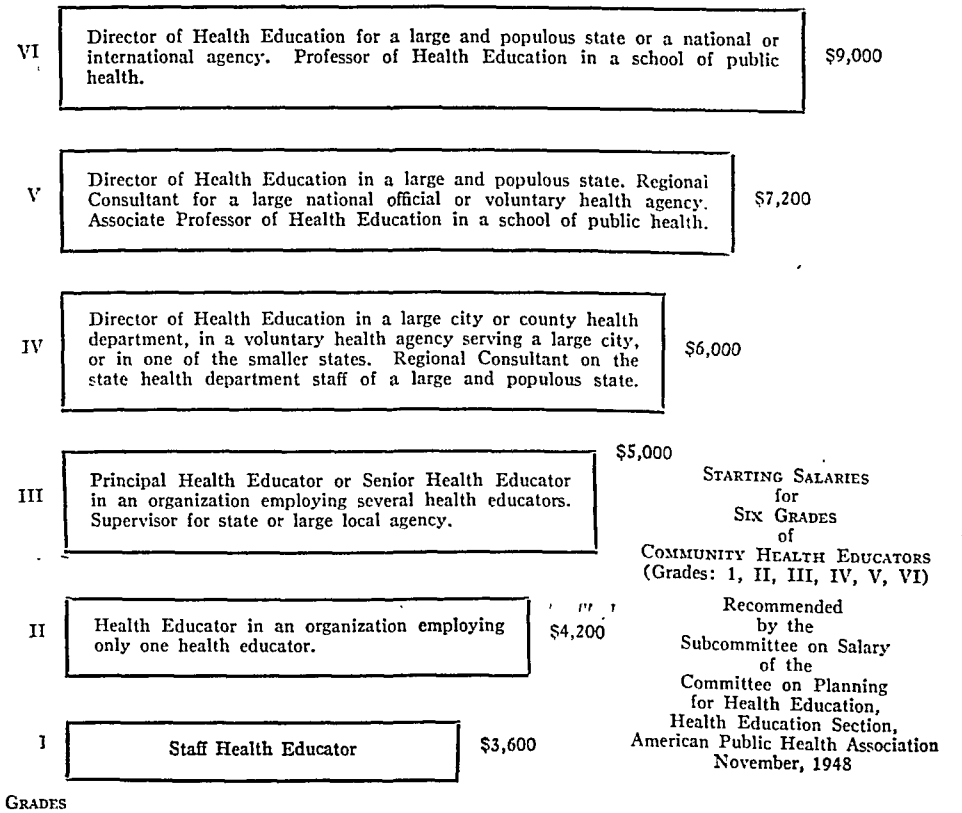
RECOMMENDATIONS OF SIX GRADES OF POSITIONS FOR COMMUNITY HEALTH EDUCATORS AND OF CORRESPONDING LEVELS OF MINIMUM STARTING SALARIES

Six grades of positions for community health educators are suggested in this report: Grades I, II, III, IV, V, and VI.

The corresponding minimum starting salaries are proposed at the following levels: $3,600 for Grade I, $4,200 for Grade II, $5,000 for Grade III, $6,000 for Grade IV, $7,200 for Grade V, and $9,000 for Grade VI.

Starting salaries above $9,000 should be considered for eminent positions of very heavy responsibility and for leading positions in areas of high-cost living conditions. Classifications including accurate job descriptions, corresponding grades of positions, and recommended starting salaries are indicated in chart.

CHART I



RECOMMENDED QUALIFICATION REQUIREMENTS FOR SIX GRADES OF COMMUNITY HEALTH EDUCATORS (GRADES I, II, III, IV, V, AND VI)

GRADE I: Graduation from an accredited school of public health with a major in health education; no experience since graduation.

GRADE II: Graduation from an accredited school of public health with a major in health education and at least 1 year of experience as a health educator.

GRADE III: Basic qualifications as stated above and at least 3 years of experience as a health educator.

GRADE IV: Basic qualifications as stated above and not less than 5 years of experience as a health educator.

GRADE V: Basic qualifications as stated above, 6 to 10 years of experience as a health educator and as an administrator or as a supervisor of a health education program for a large population group.

GRADE VI: Basic qualifications as required for Grade V but not less than 10 years of outstanding and successful experience in local and state or national organizations and/or teaching experience in health education acquired preferably in a school of public health.

SPECIAL PROVISIONS FOR THE SUBSTITUTION OF QUALIFICATION REQUIREMENTS

It is obvious that special provisions relative to qualification and classification must be made in favor of those men and women who have been active in health education successfully for years without possessing graduation requirements that are proposed for respective positions at this time. In order to cover the qualification of individuals as identified above, it is considered necessary to incorporate into the classification and salary scheme a special mandatory clause, as follows:

"Graduation from an accredited school of public health with a major in health education is not held a required qualification for persons who have already been active in the field of health education for years (health education 'pioneers')."

Numerous individuals who are well known in health education, and among them many who are prominent in this field, possess Master degrees and other than degrees with a major in health education and/or Doctor degrees of various kinds. In order that there might be no doubt about the qualification and classification of these persons, the following special clause as an integral part of the proposed classification and salary scheme seems necessary:

"Master degrees other than degrees with a major in health education, and Doctor degrees as degrees of Ph.D., Ed.D., Dr.P.H., M.D., D.D.S., D.V.M., Dr.Eng., and Sc.D. are considered full qualifications for persons with additional experience and reputation in the field of health education."

RECOMMENDED MINIMUM STARTING SALARIES FOR ASSISTANTS (AIDES, APPRENTICES) IN COMMUNITY HEALTH EDUCATION

There are a number of recent graduates with Bachelor degrees in health education who are working in the field of community health education, individuals who are expected to serve more or less in the capacity of assistants, aides or apprentices in community health education rather than as full-fieldged workers with independent responsibility for the program in health education. Generally, minimum starting salaries of $3,000 for this group seem reasonable.

ACKNOWLEDGMENT—The Chairman of the Subcommittee on Salary for Health Education Personnel wishes to express his sincere appreciation and thanks for the excellent cooperation and support given him by the members of his committee.

ALFRED K. GEORGE, M.D., University of Cincinnati, College of Medicine, Department of Preventive Medicine, Cincinnati, Ohio, *Chairman*

Public Health Films*

Public Health Education Section

DURING the past year a Subcommittee of the Committee on Public Health Films (Public Health Education Section) has been exploring needs in the health field with a view to suggesting practical solutions.

Examination of the field indicates the lack of any central intelligence to assemble and disseminate information on health films. It has shown the need now for the establishment of a National Service or Agency with sufficient funds, personnel, and prestige to play an effective part in promoting the production of better health films and a better use of health films.

Specifically the subcommittee recommends:

1. The establishment of a beginning program of health film reviews in the American Journal of Public Health for which detailed recommendations have been prepared. This project is approved to be started as promptly as possible and without waiting for the establishment of Section II of this program.
2. The establishment of a Health Film information and coördination service under the auspices of a National Health Agency, which would:
   a. Establish a clearing house for all health film projects.
   b. Collect and disseminate information on health films.
   c. Promote the publication of health film catalogs.
   d. Promote the wider appreciation of the movies as an important means of education and encourage research in this field.
   e. Promote the establishment of reference film libraries and information centers on a regional basis.
   f. In general, keep in touch with the needs of the health film field, make these needs articulate and sponsor sound health film development.

SUBCOMMITTEE ON PROGRAM DEVELOPMENT

KENNETH D. WIDDEMER, 15 Meadow Ave., Bronxville, N. Y., *Chairman*

SALLIE BRIGHT
HOMER N. CALVER
E. R. COFFEY, M.D.
HELEN CROSBY
JOHN W. FERREE, M.D.
H. E. KLEINSCHMIDT, M.D.
T. SPENCER MEYER
THOMAS C. STOWELL

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* Report of the Chairman.
COMMITTEE ON PUBLIC HEALTH FILMS.
Organized 1946. Published report: *Year Book*, 1947–1948.
Approved by the Public Health Education Section.

School Health Section*

DURING the past year your officers have given particular thought to ways of making the Section better serve the needs of its members. We believe that the annual meetings need to be augmented by some plan of year around working on problems and sharing of experiences which will reach every member, not just those fortunate enough to get to an annual meeting. Such a plan is not easy to work out. We have over 300 members scattered across Continental United States, the territories, and in other countries; and our members consist of a number of professions engaged in every aspect of service to children of school age. On the other hand, we have a community of interest and an eagerness to improve our understanding and skills which we believe will serve to overcome the difficulties. As a step toward better understanding of our needs, I have done some analyzing of the membership to find out what kind of people we are professionally, what kinds of jobs we have in school health, where we work, and who employs us.

MEMBERSHIP OF THE SECTION

There are now some 334 members in the School Health Section, an increase of about 50 in the past year. We have members in 37 states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and also in Canada, Holland, China, and India. The distribution of the membership shows a concentration in the more populous states as would be expected, but 11 of our states have no members at all and 15 states have only one or two members. This would seem to indicate that large sections of the country are being less influenced by the work of the Section than we would like. We have 46 Fellows. Their numbers are too few and the distribution is too uneven to make for a really representative group from which to choose the leadership of our Section.

GEOGRAPHIC DISTRIBUTION OF MEMBERS

Largest	New York	77
	California	44
	Pennsylvania	21
	Massachusetts	17
	Illinois	14
	Ohio	14

No members in 11 states—Vermont, New Hampshire, Delaware, Alabama, Mississippi, Arkansas, New Mexico, Wyoming, North Dakota, Idaho, or Nevada.

In the states with larger number of members some attempt was made to determine the proportion of members in metropolitan and the more rural sections of the states. Of the 77 New York members, 52 are in New York City, and 26 are in upstate New York. In California, 18 are in metropolitan areas, and 26 outside the metropolitan centers. In Pennsylvania, 9 of the 21 are in Philadelphia or Pittsburgh, and the remaining 12 are elsewhere in the state. In Massachusetts and Illinois, most members are outside the metropolitan centers. In general there are somewhat more members outside metropolitan centers than in them.

The location of the Fellows is shown to be concentrated in New York and California.

TYPE OF SERVICE BEING RENDERED BY MEMBERS OF THE SECTION

Analysis was made of 296 members, on whom sufficient data are available. Thirty-eight were listed as students and

* Report of the Chairman.

others whose positions were not indicated on the membership list.

Physicians Rendering Health Services to Children of School Age Constitute the Largest Group—84, or 28 per cent—Direct Services, 66; Administration of School Health Services, 18.

Nurses Engaged in School Health—58, or 20 per cent—Includes direct service and supervision.

The two Health Service groups combined account for about 50 per cent of the membership.

Teachers—68, or 23 per cent—Of these teachers, about two-thirds are engaged in teaching in universities and colleges, and one-third are in public school systems. About two-thirds are teaching Health Education or Physical Education and Health Education combined.

Consultants—Coördinators—50, or 17 per cent—Consultants in Health Education constitute the largest single group with consultants in school health administration, school nursing, education of the physically handicapped being reported also.

Administrators—Exclusive of School Health Administration—36, or 12 per cent—These administrators are engaged in a great variety of activities and include superintendents of schools, health officers, directors of maternal and child health of state and city departments of health, state directors of physical education and administrators of voluntary health agencies.

Who employs our members?

Local School Departments		114	39%
Elementary, Secondary, and Private Health Services	78		
Cities	34		
Rural	44		
Teachers	17		
Administration	14		
Consultants	5		
State Departments of Education		12	4%
Consultants	8		
Administration	4		
Federal Government		3	
Office of Education	2		
U.S.P.H.S.	1		
Colleges and Universities		63	21%
Total Employed by Educational Institutions		181	65%
Local Health Departments		54	18%
Health Services	42		
Cities	30		
Rural	11		
Administration	11		
Consultants	1		
State Health Departments		19	7%
Consultants	14		
Administration	4		
Voluntary Health Agencies		31	
Total Employed by Health Agencies		104	35%

What may we conclude from this for our guidance in planning future work of the Section?

1. We need to increase our membership particularly in those sections of the country not now represented. This would seem particularly important as these are the more rural sections of the country where school health services are least well developed and where the need is greatest.

2. We need to increase the number of Fellows in the Section to make possible a more representative group from which the Section may choose its leadership.

3. The Section membership now is made up of persons serving in nearly all aspects of school health—health services, both direct and administration, teachers, consultants and in the general fields of health and school administration, and in many important voluntary health agencies. We do not in this Section have engineers or others primarily concerned with school environment, an important field, and we have far too few teachers and administrators in the elementary and secondary fields. With the ever increasing recognition of the important rôle in all aspects of school health played by the teachers, it is clear that we should have more of them in our Section and would welcome them.

4. A significant fact is that local schools employ more of our members than any other agency. In program planning and selection of leadership in the Section, this should be borne in mind.

5. For those specialists who have important contributions to make to the improvement of the school health program, such as those in the fields of rheu-

matic fever, epilepsy, auditory and visual defects, and other handicapping conditions, dental health, nutrition, emotional health, and social work, we need to look to other Sections in the A.P.H.A. and to groups outside the Association for help.

One of the fine things about being a part of a great organization such as the A.P.H.A.—with its wealth of membership in all the health fields—is that we may call upon them to help us solve our problems. Every Section has a contribution to make to the field of School Health. On the other hand, we have an opportunity and an obligation to influence the thinking of those in the other Sections—to keep them abreast of modern thought and developments and special problems in our field. During this past year, our Legislative Committee, of which Dr. Baumgartner is chairman, has been active. She will report to you. Our excellent Secretary, Sol Lifson has kept you informed of developments through the newsletter. The program of this annual meeting was arranged by him to deal with the special interests and problems which you indicated in your responses to his newsletter request. On Monday evening, your Section Council met to consider ways of making the Section more helpful to all our members on a year round basis. Authorizations were given for two working committees. One, a committee to study text materials used by schools in the health fields such as general science, home economics, hygiene, physical education, and family life. It was specified that this committee be so organized as to involve as much of the Section membership as possible.

It was also authorized that the Section set up a joint committee with one from the American Association of Health, Physical Education and Recreation, to help publishers clear the health content of textbooks to be used in the schools.

The second committee authorized will make a study of Health Service Records and statistics including methods of collecting the kind of data, which will be of value in evaluating those services and conducting field tests. Other action taken by the Council was authorizing a joint committee with the American Association of Health, Physical Education and Recreation to evaluate the School Health Materials submitted from all parts of the country in connection with the Health Exhibit. The Section owes a very special debt of gratitude to Miss Marjorie Craig for the outstanding job she has done in making this material available at this meeting.

Our Section was authorized to send a letter to the Executive Board requesting appropriate action on the part of the A.P.H.A. in urging the Federal Security Administrator to call a National Conference on School Health as recommended by the Committee of the National Health Assembly.

At the Section Council meeting, two resolutions were formed for submission to the Resolutions Committee.

JESSIE M. BIERMAN, M.D., University of California, School of Public Health, Berkeley, Calif.. *Chairman*

Membership and Directory

Statistics Section

SINCE the last annual meeting, the committee has, with the coöperation of key people in each state, compiled a *Directory of Public Health Statisticians*. This *Directory* was published in October and mailed to all members of the Statistics Section.

The new *Directory* contains 1,313 names as compared with 885 included in the third edition of the *Vital Statistics Directory* published in 1945. Included are members of the American Public Health Association as well as non-members.

Letters were sent to 680 non-members listed in the *Directory of Public Health Statisticians* and 43 paid applications for membership in the American Public Health Association were received to date. Other efforts to recruit new members were made by sending invitations to individuals on the roster of a professional organization and this resulted in 30 paid applications.

Although there was a significant number of lapsed memberships by the middle of the year, the recruitment program has brought the membership of the Statistics Section to the highest point in its history. On November 1, 1948, the membership of the Section totaled 464, of which 392 were members and 72 were Fellows. On September 1, 1947, the membership total was 410, 342 members and 68 Fellows.

The total membership of the Statistics Section ranked 10th among the Association's 12 Sections in 1947 but it has now moved up to 8th place in the rank order.

COMMITTEE ON MEMBERSHIP AND DIRECTORY

IWAO M. MORIYAMA, PH.D., National Office of Vital Statistics, Washington, D. C., *Chairman*
MARJORIE T. BELLOWS
CLARA E. COUNCELL, PH.D.
MARGUERITE F. HALL, PH.D.
ELLIOTT H. PENNELL

Opportunities in Statistical Work*

Statistics Section

THE purpose of the Committee on Opportunities in Statistical Work and a plan for its activities were stated in the report submitted by the Committee to the Vital Statistics Section of the American Public Health Association on October 6, 1947.

A meeting of the committee was held in New York City on April 9 and 10, 1948, to plan in more detail the work of the committee. A report of this meeting follows:

REPORT OF MEETING IN NEW YORK, APRIL 9–10, 1948

Full membership of the committee was present: Ellen W. Jones, *Chairman,* Dr. Paul M. Densen, and Dr. Margaret Martin. In addition, two invited guests joined the group in the afternoon of the 9th for a discussion of recruitment of and field training for potential statisticians. The guests were: Dr. E. C. Hammond, Statistician, American Cancer Society; and Marjorie Bellows, Statistician, American Heart Association.

The major business of the meeting was concerned with the preparation of a pamphlet on careers in public health statistics. It was agreed that the pamphlet should be inspirational in tone and should be worded so as to be useful for recruiting personnel in universities, colleges, and, possibly some senior high schools. It should contain very definite information, however, on what kinds of jobs exist, where they are and the general range of salaries available for positions at various levels of responsibility. The pamphlet should direct the reader to the proper sources for obtaining specific information on these subjects. In addition, the committee felt that it would be desirable to include a statement indicating the educational qualifications needed by individuals wishing to begin a career in the field of public health statistics. Specific requirements could not be given in view of the present lack of uniformity in specifications for jobs in the various official and private agencies employing statisticians. At the same time, the pamphlet should set forth the important components of undergraduate training, and the importance of obtaining practical field experience before taking graduate training. These recommendations should, of course, be in line with those of the Subcommittee on Educational Qualifications of Personnel in Vital Statistics and Vital Records of the Committee on Professional Education.

Other subjects discussed in connection with the pamphlet were distribution and financing. Channels of distributions which were discussed briefly were as follows. Undoubtedly others should be considered also.

State health departments
Federal Civil Service
State civil service systems
Teachers of statistics, mathematics, and the social sciences
"Deans of Students" or "Deans of Junior Colleges" in colleges and universities
Libraries in colleges and universities
Vocational guidance officers in schools
U. S. Office of Education

At the time of this meeting, the com-

* Report of the Committee.
COMMITTEE ON OPPORTUNITIES IN STATISTICAL WORK.
Organized 1946.

mittee was advised that funds available through the Committee on Professional Education, which is publishing the entire series of vocational pamphlets, were extremely limited; and if anything more ambitious than a four page leaflet, without illustrations, were desired, then funds should be sought elsewhere. After considerable discussion of the aims of the Statistics Section in publishing the pamphlet, there was some indication that one of the voluntary agencies might be willing to finance the job. This was not pursued further at the time because of the fact that the overall budget of the Association was currently undergoing revision and it was considered advisable to postpone individual requests until this matter was settled. It is hardly necessary to say, however, that the question of financing publication of the pamphlet should now be pushed without delay.

Subsequent to the committee meeting, a tentative outline of the text and a dummy copy of the pamphlet were prepared and discussed with a New York printer.

At the last meeting of the Statistics Section in Atlantic City it was suggested that the Committee on Opportunities consider a compilation of information on graduate public health courses available to statisticians. Dr. Margaret Martin is now exploring the need for such information and ways and means of obtaining it.

The committee also discussed the need for acquainting vocational guidance officers with the jobs available to statisticians in public health and related fields. (This project was also reported to the Section at the last meeting.) It was the consensus that the effort should be to acquaint selected guidance officers —probably 10 or 12— with the whole field of public health rather than with public health statistics alone. It was suggested that the period of instruction should be of possibly two weeks' duration with one week devoted to lectures and seminars and another to field observation. As a solution to the problem of recruiting more and better public health personnel, this would be a small beginning indeed. But as an experiment in one of the ways of accomplishing the purpose, the project would be most valuable. Although the discussion clarified to some extent the thinking of the committee members on the subject, the project has not been developed further, chiefly for reasons of financing as stated above. The committee believes that this effort should now be given renewed consideration.

Since it impinges on all other topics with which the Committee on Opportunities is concerned, the question of field training for Statisticians was included in the agenda of the April meeting. The discussion related particularly to field training or orientation for potential statisticians entering the public health field. The discussants took cognizance of the fact that individuals just entering the field of public health statistics come from a variety of backgrounds, and that this is wholly desirable. No one type of field orientation would answer the needs of all these individuals; yet all need some type, and it is hoped that the Association will make specific recommendations with regard to this subject. The committee's discussion in April centered particularly on one type of individual, the young college graduate whose academic training included mathematics and statistics, preferably with one or more of the physical sciences, and who has had no work experience in public health. It was agreed that the immediate problem was to get these people trained on the job as rapidly as possible so they could fill some of the many vacancies in statistical positions with some degree of responsibility. It seemed to the group that a combination of supervised work, on the job, and academic instruction of a highly specialized sort (not necessarily

leading to a graduate degree) was the best expediency. The Tennessee Department of Public Health and the Department of Preventive Medicine of Vanderbilt University Medical School jointly worked out such a program which has already been reported to this Section. As a result of the committee meeting in April, the statistics and research section of the American Cancer Society and New York University have begun such a training program. This program is to be reported soon in the Association's *Journal*.

The Committee on Opportunities in Statistical Work contemplates no particular action on the subject of field training, but since this is a subject closely related to that of recruitment of personnel, it feels that it is important to bring it to the attention of the Section and interested individuals on every possible occasion.

At a business meeting of the Statistics Section in Boston, November 9, 1948, the Committee on Professional Standards and Remuneration and the Committee on Opportunities in Statistical Work were terminated. A new Committee on Opportunities and Functions of Statisticians was appointed, to combine with new functions some of the previous activities of these committees.

ELLEN W. JONES, Commonwealth Fund, New York, N. Y., *Chairman*
PAUL M. DENSEN, D.Sc.
MARGARET P. MARTIN, PH.D.

Standards and Remuneration*

Statistics Section

THE task originally assigned to the Committee on Remuneration and Standards was that of developing, if possible, a salary scale for professional personnel engaged in public health and vital statistics work. The committee was also charged with the general responsibility of attempting to formulate standards for statistical positions in health departments.

Examination of reports made by other Sections of the Association and discussion with the chairman of the Section's Committee on Opportunities in Statistical Work and of the Committee on Professional Education's Subcommittee on Educational Qualifications of Personnel in Vital Statistics and Vital Records led this committee to the realization that the existing lack of definition of the purpose and function of a statistician in a health department made it almost impossible for the committee to carry out its original assignment.

The committee reached the conclusion that a necessary preliminary to the eventual development of salary scales and professional standards was a survey of the existing situation with respect to salaries, background, duties, and qualifications of public health and vital statisticians. It was felt that information should also be sought on the methods by which present personnel had entered the field because of its bearing on the future development of professional standards and because such information would be of value to the other two committees working in the field.

Accordingly, in the summer of 1947 the committee undertook a survey of the following classes of personnel in state health departments:

1. All personnel classified as statisticians
2. All personnel doing analytical work demanding some knowledge of statistical principles and methodology
3. All personnel engaged in vital records registration at a professional or policy level
4. Other personnel considered by the reporting agency as properly belonging to the statistical group

The questionnaire used in the survey asked for the individual's job title, his remuneration, a description of his duties in his own words, his education; and the particular circumstances which led to his entrance into the field of statistics in general and public health statistics in particular. These data were obtained from personnel in 43 state health departments, largely by a series of direct visits by a representative of the Division of Public Health Methods, U. S. Public Health Service, supplemented by mail questionnaires to those departments which could not be visited.

This report presents the results of this survey. A brief discussion of the classification scheme adopted by the committee is essential before discussing the findings. The classification was made with reference to job descriptions only; jobs which the committee considered to be equivalent in responsibility being grouped without reference to salary or title.* It is desired to

* The Interim Report of the committee in "Clearing House on Public Health Salary Information," *A.J.P.H.*, Feb., 1948, contains a table showing the multiplicity of job titles.

* Report of the Committee.
COMMITTEE ON PROFESSIONAL STANDARDS AND REMUNERATION.
Organized 1946.

emphasize the fact that the scale of classification is continuous in nature and that the dividing line between any two adjacent classes is obviously somewhat arbitrary. The decision to place an individual in one or the other of these classes was based upon the majority verdict of the members of the committee after independent examination of the returns. The classification arrived at is as follows:

Group I (Chief Statistician)—Workers in this category are chiefs of a statistical unit engaged primarily in analytical work exclusive of registration activity. In coördination with other activities of the health department they are responsible for the development of a statistical program from the planning stages through the final analysis and presentation of results. They exercise considerable independence of action within the broad policies laid down by the health commissioner.

Group II (Registrar)—Chiefs of a statistical unit engaged primarily in the registration of births and deaths. Responsible for formulation of policy in relation to registration matters and at times for analysis of the registration function but not engaged in analysis with regard to health department activities as a whole.

Group III (Chief Statistician and Registrar)—Chiefs of a combined registration and analysis unit. These combine the duties and exercise the responsibilities of the Chiefs in Groups I and II.

Class A (Assistant Registrar)—Individuals in this group usually function under the immediate supervision of someone in Group II. They ordinarily engage in no analysis but are given considerable responsibility for the routine production of vital statistics and may be directly in charge of a large clerical office. When necessary they may act in the place of the person in charge of the registration unit.

Class B (Senior Statistician)—Under the general supervision of individuals in Group I or Group III they are responsible for analysis of a high order of technical competence demanding a good general knowledge of public health. May consult with chiefs and other personnel of the health department with regard to planning of a study, collection of data, tabulation and analysis of results. Under general supervision only, may initiate studies and exercise considerable independence of action within broad policy lines laid down by the chief. Analytical work not confined to one particular aspect of public health.

Class C (Junior Statistician)—Individuals in this class are usually under the immediate and fairly close supervision of individuals in Class B. They do not confer, except on rare occasions, with chiefs of other divisions. They may supervise a small clerical or tabulating force or be responsible for some tabulating work.

FINDINGS

The Number of Statistical Workers in the Different States (Tables 1 and 2)—

Almost half the states for which returns were tabulated had only one statistical worker, although one state had 16. If Groups I, III, III-B, and III-C are put together and for convenience sake called "analytical" workers, there are 17 states with no "analytical" workers at all.

When the states are ranked according to expenditures for public health in 1947, it is found that of the 70 "analytical" workers, 56 are in the states in the two upper quartiles with respect to expenditure. (It should be remembered here that the data are heavily

TABLE 1

Distribution of States According to Number and Type of Statistical Workers

No. of Statistical Workers	*No. of States*	*Number of States with Various Combinations of Statistical Workers*
1	21	I-1, II-15, III-2, A-1, B-2
2	8	II & B-3, II & C-2, II & A-1, III & C-1, I & II-1
3	7	II, B & C-3, II, A & B-1, II, A & C-1, II & B-1, III & C-1
4	2	I, II & C-1, II, B & C-1
5	2	III, B & C-1, III, A, B, C-1
8	2	II, B & C-1, I, II, B & C-1
16	1	III, A, B, C-1
Total	43	

TABLE 2

Distribution of Statistical Workers in State Health Departments by Type of Worker and by Quartile Grouping of States for Total Public Health Expenditure in 1947

Quartile Grouping of States	Type of Statistical Worker				
	Total	Registrar	Chief Stat. and Reg. or Chief Stat. Only	Sr. Stat.	Jr. Stat.
Upper	47	6	4	23	14
Second	26	11	3	3	9
Third	15	4	4	4	3
Lower	14	11	..	1	2
Total	102	32	11	31	28

TABLE 3

Distribution of Statistical Workers in State Health Departments by Type of Worker and Salary Level

Type of Worker	Total	Salary Level				
		$1,000–1,999	$2,000–2,999	$3,000–3,999	$4,000–5,999	$6,000–7,999
Total	108	2	36	36	31	3
I (Chief Statistician)	4	0	1	1	2	0
II (Registrar)	32	0	5	8	17	2
III (Chief Statistician & Registrar)	7	0	0	1	5	1
A (Assistant Registrar)	6	0	3	2	1	0
B (Senior Statistician)	31	0	6	21	4	0
C (Junior Statistician)	28	2	20	4	2	0

weighted by the returns from 3 states which have 32 of the 108 statistical workers.)

The committee feels that these facts are of considerable significance when taken in relation to the expanding nature of public health as evidenced by the development of cancer programs, rheumatic fever programs, medical care programs, etc. If it be granted that the function of the statistician in the health department is to aid in the definition of public health problems, to suggest points of attack upon these problems and to evaluate the success of the program, then the lack of any "analytical" workers in many of the states represents a serious deficiency in the development of public health programs.

The data in these tables also carry implications for the training of statistical workers. Many of the states in the lower two quartiles have only a registrar at the present time. It is important, therefore, that the registrar have some kind of training in the analytical phases of public health and vital statistics. Even should the state manage to get funds for a separate "analytical" worker, the registrar should have had some training in this field because he will be called upon to work with this "analytical" person and in some cases to supervise him. Conversely, it is desirable that the training of the "analytical" worker include a grounding in the fundamentals of registration, especially because many of the newer public health programs have a registration feature about them.

The committee would also like to make the point that the states which may be able to afford only one well trained statistical worker in the sense used here, have an inducement to offer in the form of a variety and scope of problems which in itself represents a stimulating opportunity. It would be better in this respect to pay a sufficiently high salary to attract one worker of this type, than to attempt to get workers of mediocre ability at a lower salary.

Salaries—

The facts with respect to salaries are set forth in Tables 2, 4, 5, and 6. Very few individuals command a salary of $6,000 or more per annum and the majority are paid salaries under $4,000. The highest salaries are paid to individuals in the registrar group. Of the 31 individuals performing senior statistician work only 4 command a salary over $4,000 and there were 6 individuals in this class receiving less than $3,000 per annum. Furthermore, this low salary scale is not due to a concentration of individuals in the states falling in the two lowest quartiles with respect to

TABLE 4

Distribution of Statistical Workers in State Health Departments by Type of Worker, Salary Level, and Quartile Grouping of States According to Total State Expenditure, Public Health, 1947

	Registrars				*Chief Stat. & Reg. or Chief Stat. Only*				*Senior Statistician*			*Junior Statistician*			
Quartile	*$2000 2999*	*3000 3999*	*4000 5999*	*6000 7999*	*$2000 2999*	*3000 3999*	*4000 5999*	*6000 7999*	*$2000 2999*	*3000 3999*	*4000 5999*	*$1000 1999*	*2000 2999*	*3000 3999*	*4000 5999*
Upper		1	4	1			3	1	2	17	4		10	2	2
Second		2	9		1	1	1		1	2		2	6	1	
Third	1	1	1	1		1	3		2	2			3		
Lower	4	4	3						1				1	1	
Total	5	8	17	2	1	2	7	1	6	21	4	2	20	4	2

TABLE 5

Rank According to Starting Salaries and Top Salaries of Heads of Various Division of State Health Departments by Quartile Grouping According to Total State Expenditures for Public Health in 1947

	Quarterly Grouping of States by Expenditure							
	Starting Salaries				*Top Salaries*			
Rank	*Upper*	*2nd*	*3rd*	*Lower*	*Upper*	*2nd*	*3rd*	*Lower*
1	Lab.	San.	M.S.L.*	Med.	Med.	Med.	M.S.L.*	Med.
2	Med.	Med.	M.S.L.*	San.	Lab.	San.	M.S.L.*	San.
3	San.	Lab.	M.S.L.*	Lab.	San.	Lab.	M.S.L.*	Lab.
4	Fiscal	P.H.E.	Fiscal	Nursing	*Stat.*	Fiscal & P.H.E.	Fiscal	Nursing
5	*Stat.*	*Stat.*	*Stat.* & P.H.E.	P.H.E.	Fiscal	Fiscal & P.H.E.	*Stat.*	P.H.E.
6	Nursing	Fiscal	*Stat.* & P.H.E.	Fiscal	Nursing	*Stat.*	P.H.E.	*Stat.*
7	P.H.E.	Nursing	Nursing	*Stat.*	P.H.E.	Nursing	Nursing	Fiscal

* M.S.L. used to show salaries of medical, sanitary, engineering, and laboratory workers too close to permit separate ranking.

TABLE 6

Median Upper and Lower Salary Limits for State Health Department Positions at Organizational Levels Comparable to Chief Statistician or Director of Vital Statistics by Quartile Grouping of States for Total Public Health Expenditure in 1947

Quartile Grouping of State	*Median Upper & Lower Salary Limits for Directors of State Services*						
	Statistical Registration	*Medical*	*Nursing*	*P. H. Education*	*Sanitation & P. H. Engr'g.*	*Laboratory*	*Fiscal & Adminis.*
Upper	$5020–6575	$5820–7680	$4590–5400	$4560–5280	$5580–6780	$6000–7140	$5305–6480
Second	3930–4860	4650–5730	3650–4320	4200–5100	4896–5664	4500–5400	3900–5100
Third	3900–4710	4800–6000	3480–4200	3900–4500	4500–6000	4500–6000	4320–5400
Lower	3205–3745	5400–6480	3702–4500	3270–3990	4200–5100	4020–4900	3240–3480

TABLE 7

Distribution of Replies to Question: "In what field did you first make contact with statistics in general?" by Type of Statistical Worker

Field	Total 108	I (Chf. Stat.) 4	II (Reg.) 32	III (Chf. Stat. & Reg.) 7	A (Asst. Reg.) 6	B (Sr. Stat.) 31	C (Jr. Stat.) 28
Social Sciences	41	2	7	4	2	13	13
Courses	34	2	6	4	2	11	9
Employment	7		1			2	4
Mathematics	17		5	2		7	3
Courses	17		5	2		7	3
Biological Sciences	48	2	18	1	4	11	12
Courses	18		4	1	1	8	4
Employment	30	2	14		3	3	8
Not Recorded	2		2				

expenditures for public health. More than half the individuals doing senior statistician's work in the opinion of the committee are in the states in the two upper quartiles. This illustrates the committee's contention that it is difficult to recommend salary scales until there is a clearer definition of function.

Further evidence on this point is yielded by Tables 5 and 6 in which the salaries of directors of statistical units are compared with those of directors of other services in state health departments. It is noted that medical directors, directors of laboratory services, and sanitary engineering directors jockey for first position for both starting and top salaries. These are the three groups whose function in the health department is pretty well defined and for whom professional standards have been stabilized. The three groups for which standards and function are relatively ill-defined fall at the lower part of the salary scale. Effort must be bent to clarify the place of the statistician in the health department. The committee believes that when this is done salaries will tend to rise and standards will be more meaningful.

Method of First Making Contact with the Field—

Of the 108 individuals for whom the information was available, 41 first made contact with statistics in general through the social sciences, 48 through the biological sciences, and 17 through mathematics (Table 7). However, of those who entered statistics through the social sciences most first learned of the subject through courses of one kind or another, whereas only about one-third of those making contact through the biological sciences did so through the media of courses. So far as the mathematical group is concerned, almost all can be considered as having learned about statistics through courses.

The significance of these facts for public health and vital statistics is twofold. People are not hearing about statistics when they come through the biological side of college work. They have to get out and work for a while and come to it more or less by chance in their employment. But public health, of course, has a considerable biological background. The result is that the people with biological science background tend to come into the field lacking any training in statistics while those who received such training through the social sciences tend to be deficient in biological background. A proper balance of the two is to be desired.

The replies to the question concerning the method of *first* learning about public health or vital statistics also bear out the foregoing points (Table 8). A little more than half of the replies indicated that the individuals learned about public health statistics more or less accidentally. Only 21 learned about the

TABLE 8

Distribution of Replies to Question: "How did you first learn about public health statistics?" by Type of Statistical Worker

Method of First Learning About Field	All Types	Type of Statistical Worker: I (Chf. Stat.)	II (Reg.)	III (Chf. Stat. & Reg.)	A (Asst. Reg.)	B (Sr. Stat.)	C (Jr. Stat.)
Grand Total	*108*	*4*	*32*	*7*	*6*	*31*	*28*
By contact with another person employed in field or allied field	31	1	8	1	3	10	8
By contact resulting from personal employment in field	26		11	2	3	4	6
Through a teacher (not in p.h.) or college employment office	21	1	2	1		12	5
Through courses or a teacher in field of public health	2		1				1
Through reading	7	1	2	1		2	1
Through merit system announcement	10	1	1	1		3	4
Through U. S. Employment Service or State Employment Service	2						2
Employed in Allied Field	4		2	1			1
Not Recorded	5		5				

field through a teacher or a college employment office. This would indicate that the undergraduate student—and more particularly, his teachers and advisers—are not made aware of the field.

The result of this state of affairs is that when individuals do enter the field, a good part of their training is behind them, which results usually in gaps in their training from the standpoint of public health.

Educational Background—

The data in Tables 9 and 10, on educational background on those now in the field, substantiate these conclusions. In 1938 the Committee on Professional Education recommended at least one year of graduate professional education leading to a Master's degree or certificate subsequent to graduation from college and at least 3 months of directed practical public health experience in a recognized public health or other agency. Nearly a decade later the committee's findings indicate that nearly three-fifths of the workers in the field had no graduate public health degree and nearly one-third had no more than an undergraduate degree. These data do not accord very well with the recommendations of the Committee on Profes-

TABLE 9

Distribution of Statistical Workers in State Health Departments by Type of Worker and Highest Level of Education Attained

Highest Level of Education Attained	Total: Number	Total: Cumulative Per cent	Type of Statistical Workers: I (Chf. Stat.)	II (Reg.)	III (Chf. Stat. & Reg.)	A (Asst. Reg.)	B (Sr. Stat.)	C (Jr. Stat.)
Total	108	100.0	4	32	7	6	31	28
High School	4	3.7	0	3	0	0	0	1
Business School	3	6.5	0	2	0	1	0	0
College—no degree	10	15.8	0	5	0	2	1	2
College—degree	17	31.5	0	1	0	2	4	10
Graduate school—no degree	31	60 2	0	8	2	1	12	8
Masters, M.P.H., C.P.H.	30	88.0	2	7	3	0	12	6
Ph.D., D.Sc., D.P.H., M.D., D.D.S.	12	99.1	2	5	2	0	2	1
Other	1	100.0	0	1	0	0	0	0

TABLE 10

Distribution of Statistical Workers by Type of Worker and Background in Mathematics

Type of Worker	*Total*	*Background in Mathematics*		
		No College Mathematics	*Through College Algebra*	*Through Calculus*
Total	*108*	*23*	*34*	*51*
I (Chief Statistician)	4	0	1	3
II (Registrar)	32	14	7	11
III (Chief Stat. & Reg.)	7	0	1	6
A (Assistant Registrar)	6	2	2	2
B. (Sr. Statistician)	31	5	12	14
C (Jr. Statistician)	28	3	10	15

sional Education, particularly when one realizes the strides that have been made in the field since those recommendations were made.

A similar picture exists with respect to the mathematics and statistics backgrounds of persons in the field. Of the 108 returns, 23 showed no college mathematics at all, and only 51 of the 108 went through calculus. Even among the analysts only 38 had had a course in calculus. It is desirable that at least an elementary course in calculus be required in order that there be some basis for understanding the nature of the reasoning that results in the development of statistical theory. In so far as formal background in statistics is concerned, 23 had no statistics courses at all and 36 depended upon other fields than public health for their statistics. Although the majority of those without statistics are registrars, the point has previously been made that it is desirable for the registrar to have had such a course.[1]

It is clear that the standards suggested by the Committee on Professional Education are not being met. A quotation from a recent article in *Public Health Reports*[2] is appropriate:

"In 1947 less than 25 per cent of the classes of statistical positions in the state health departments had requirements which even approached those recommended by the Committee in 1938."

CONCLUSIONS

While the present salary scale of statistical workers in state health departments is low, the committee feels that it is essential to develop a clear statement of the duties and responsibilities of each class of statistical position in the health department before salary scales or professional standards which might be suggested can be meaningful.

The committee also feels that one of the necessary steps to improvement of professional standards for statistical workers in public health is to make those who guide the undergraduate student aware of the needs of the field, and of the background desired in personnel wishing to enter the field. It is unrealistic to suppose that the mere setting of standards will overcome some of the gaps in the training of personnel entering the field if those who guide that training are unaware of these standards.

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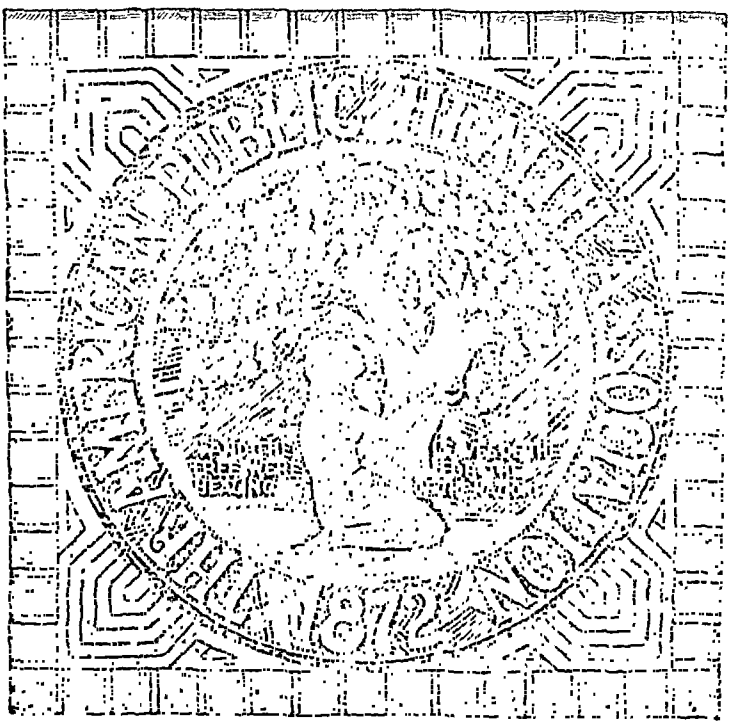
1. On these points see Personnel & Training Problem Created by the Recent Growth of Applied Statistics in the U. S. *Reprint & Circular Series No. 128*, Washington: National Research Council, 1947.

2. Swinney, Daniel D. Statistical Activities of State Health Departments. *Pub. Health Rep.* 62, 43 (Oct 24), 1947.

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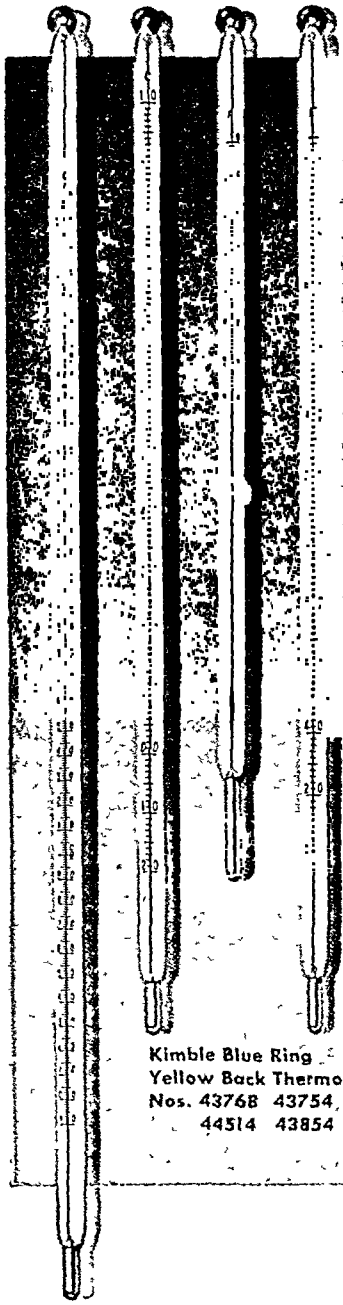
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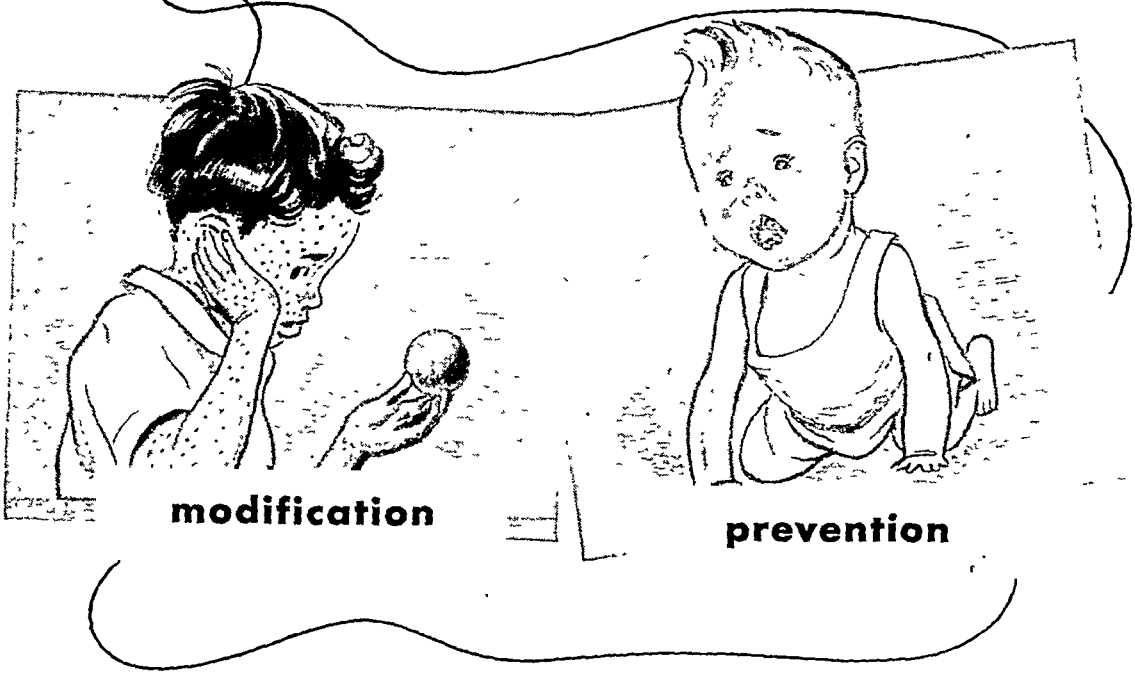
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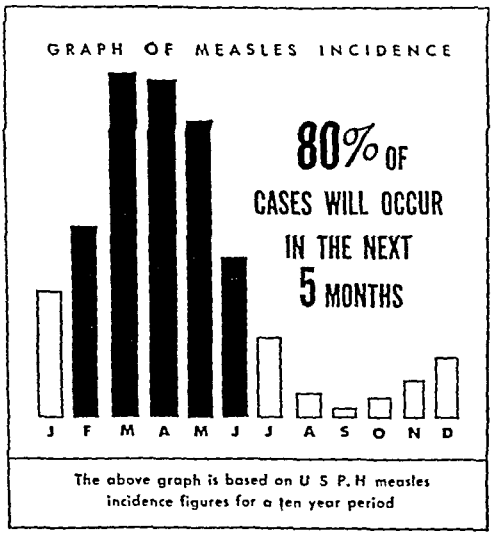
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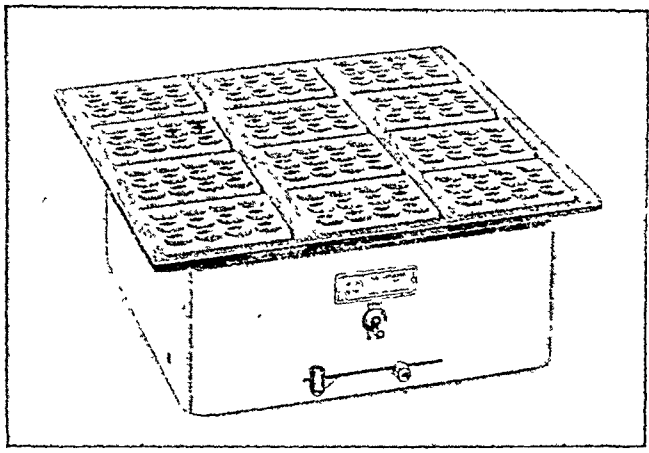
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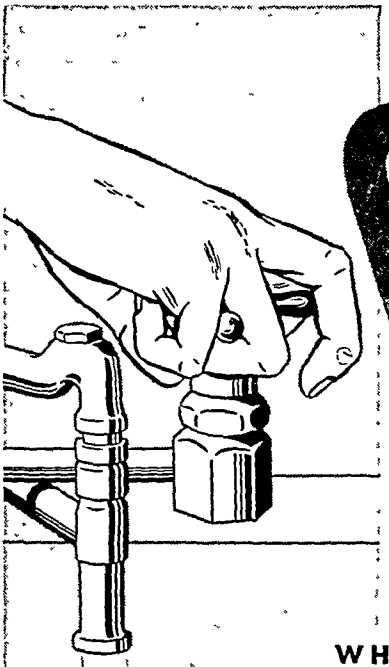
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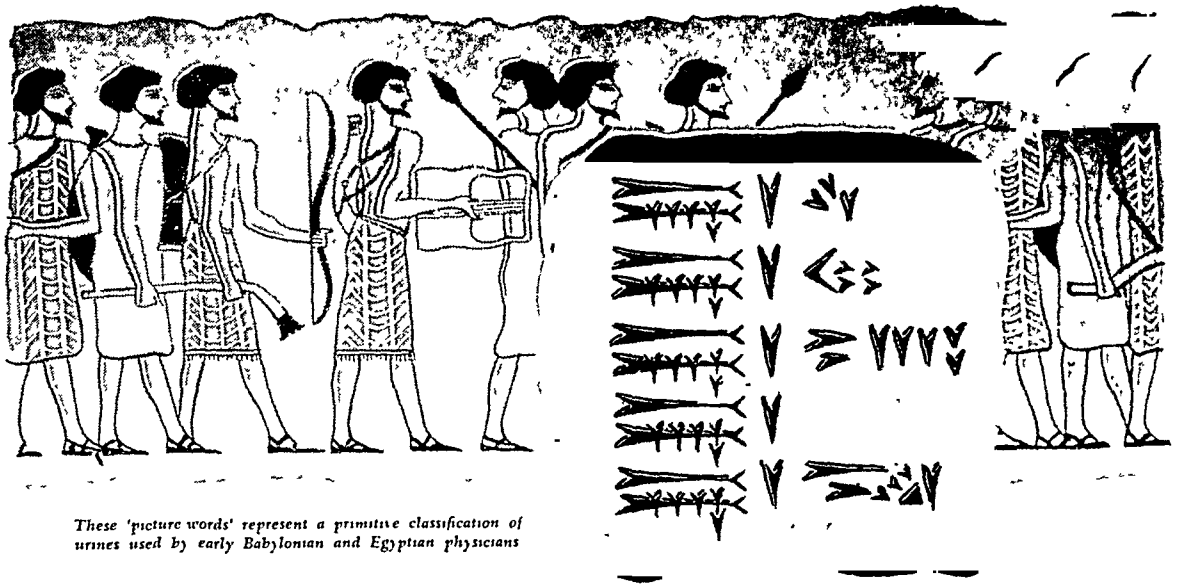
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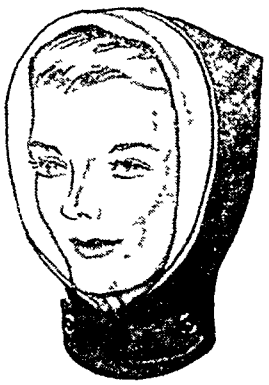
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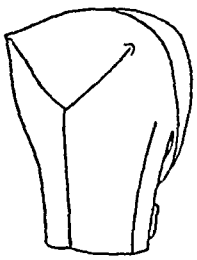
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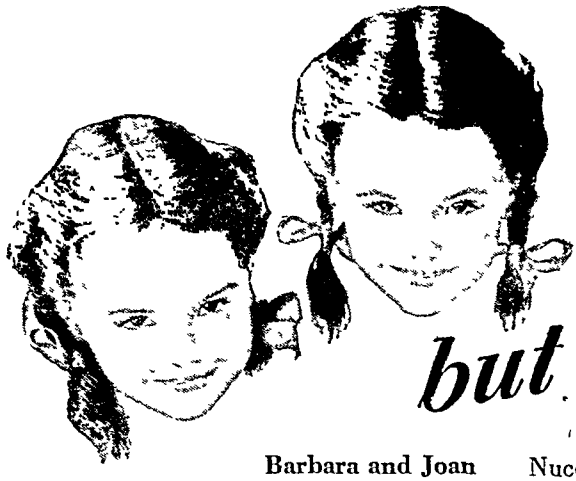
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Barbara and Joan —twin daughters of Mrs. Raymond H. Thompson of Penn Wynne, Pa.—look much alike, as you can see by their picture above. But you have only to be with them a few minutes to discover in how many ways they differ.

Brands of margarine differ, too—even when they look alike. For although the principles of modern margarine making are available to all, experience and skill in applying them vary. *Good* margarine is not easy to make.

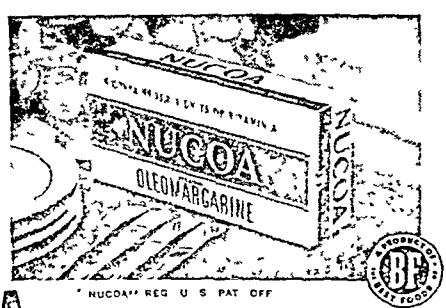
Why Millions Choose Nucoa Margarine

Best Foods, makers of Nucoa, are not newcomers in margarine making. They have been *leaders* for more than thirty years—and pioneers in the research which has made modern margarine so different from old-time kinds. That is why Nucoa margarine is so dependably nutritious . . . so unvaryingly satisfying in flavor . . . so evenly smooth-churned and luscious in spreading texture. That is why Nucoa is America's most popular margarine.

What Barbara's and Joan's mother says is typical. Like millions of other families during the years of shortage, they necessarily sampled many kinds. "But," says Mrs. Thompson, "as soon as conditions permitted us to *have* a choice, Nucoa became our favorite brand. We like it best for texture and for its *always-the-same* delicious flavor, fresh and sweet every pound."

Base Your Advice on Experience

You, to whom others turn for advice about foods, know that margarine is important in today's nutritious-at-moderate-cost diets. Base your advice on experience and be sure to try Nucoa margarine. When you use Nucoa on your own table, you will discover, we believe, how good, day in and day out, *good margarine* can be.



" NUCOA" REG U S PAT OFF

NUCOA *America's most popular margarine*

MADE BY THE MAKERS OF BEST FOODS AND HELLMANN'S REAL MAYONNAISE



The rewards of this dietary adjustment are *Immediate*

To THE person who habitually skimps on breakfast, or skips this meal entirely, a well balanced, adequate morning meal can quickly prove beneficial. A breakfast providing one-fourth to one-third of the daily nutrient and caloric needs improves morning physical stamina and mental acuity. It also enhances the opportunity of the other two meals of the day to complete the satisfaction of nutritional requirements.

It is estimated that literally millions of children and adults will benefit from this simple dietary adjustment.

A good base on which to plan the morning meal is a widely acclaimed basic breakfast pattern consisting of fruit or fruit juice, breakfast cereal, milk, bread and butter. An important main dish of this breakfast is the cereal serving, consisting of cereal, milk, and sugar.

The tables show the well balanced nutrient contributions of the cereal* serving and the basic breakfast pattern. Economy, tastefulness, and variety characterize both of them.

BASIC BREAKFAST	TOTALS supplied by Basic Breakfast	AMOUNTS supplied by cereal serving
Orange juice, 4 fl. oz.;	CALORIES..... 611	202
Ready-to-eat or Hot Cereal, 1 oz.;	PROTEIN..... 20.7 Gm.	7.1 Gm.
Whole Milk, 4 fl. oz.;	CALCIUM.....0.465 Gm.	0.156 Gm.
Sugar, 1 teaspoon;	PHOSPHORUS.... 488 mg.	206 mg.
Toast (enriched, white), 2 slices;	IRON..... 3 mg.	1.6 mg.
Butter, 5 Gm. (about 1 teaspoon);	VITAMIN A..... 1074 I. U.	193 I. U.
Whole Milk, 8 fl. oz.	THIAMINE..... 0.52 mg.	0.17 mg.
	RIBOFLAVIN....!. 0.87 mg.	0.24 mg.
	NIACIN..... 2.3 mg.	1.4 mg.
	ASCORBIC ACID.. 64.8 mg.	

Composite average of all breakfast cereals on dry weight basis.

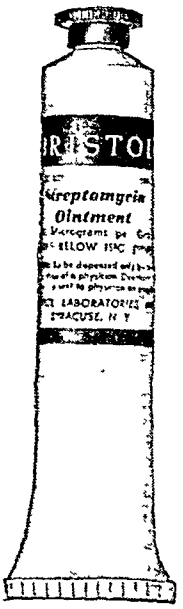
The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.

A RESEARCH AND EDUCATIONAL ENDEAVOR DEVOTED TO THE BETTERMENT OF NATIONAL NUTRITION

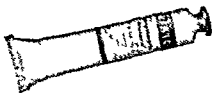
135 South La Salle Street • Chicago 3

Streptomycin *is now available in* Ointment *form*



Here is another original contribution to the antibiotic armamentarium from Bristol Laboratories: streptomycin sulfate for topical application, in a smooth, greaseless, ointment base. This significant development of Bristol research is noteworthy for the following:

1. A Broad Antibacterial Spectrum



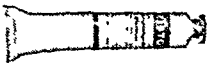
The variety of bacteria destroyed or inhibited by streptomycin is remarkably broad Its antibacterial spectrum surpasses those of other antibiotics in current use for topical application

2. Less Sensitizing



Streptomycin in ointment form minimizes the greatest single objection to topical antibiotic therapy in that it is demonstrably less sensitizing.

3. A Water-Soluble Ointment Base

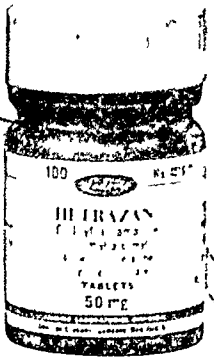


Bristol Streptomycin Ointment is unusually pleasant to use, because it is incorporated in a smooth, water-soluble base Despite the fact that there is no grease or oil, adequate potency can be expected to persist throughout the full dating period of nine months after manufacture

Bristol STREPTOMYCIN OINTMENT is indicated in skin and wound infections due to streptomycin-sensitive organisms. Each gram of the ointment contains 5000 micrograms of pure streptomycin.

Available NOW from your usual source of supply, in 1 oz. tubes, singly, or packed 12 to a carton.

Bristol
LABORATORIES INC
SYRACUSE, NEW YORK



HETRAZAN*

DIETHYLCARBAMAZINE

LEDERLE

Stability in the Tropics

This new organic compound may be given easily by mouth, is almost immediately effective against the microfilariae in the blood stream and tissues, and is stable at the high temperatures that prevail in the tropics. It tends to end infestation with bancroftial filariae in 3 to 4 weeks and may be used to stamp out the infestation in whole populations.

Clinical tests made in India, Africa, the South Pacific, the West Indies, and Central America have established its clinical use.

PACKAGES: *Bottles of 100 and 1000 tablets*

*Reg. U. S. Pat. Off.



High power photomicrograph (X 210) of microfilaria of W. bancrofti *in human blood. The red blood cells have been dissolved, leaving only the microfilaria and the white blood cells.*

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

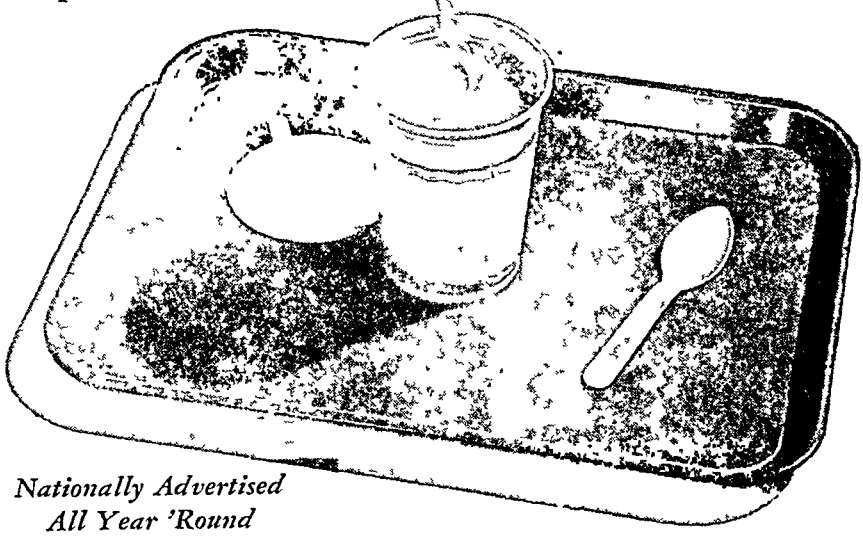
30 ROCKEFELLER PLAZA NEW YORK 20, N. Y.

Cold

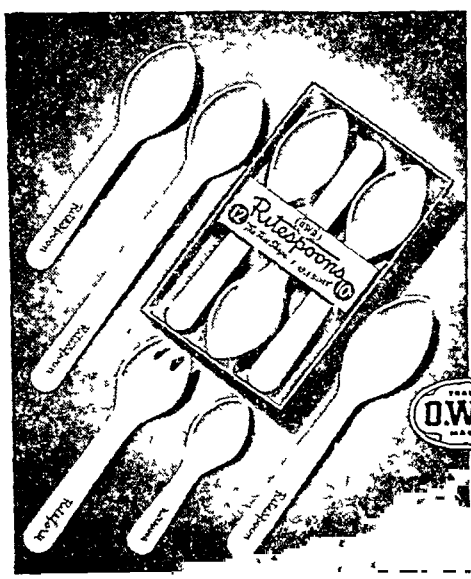
So what?

Cold weather increases the difficulty of maintaining sanitation in public refreshment places. But the assured cleanness of single service spoons and forks can be maintained by use of OWD Ritespoons and OWD Ritefork.

Complete utility of OWD Ritespoons in hot beverages, and semi-liquid hot foods gives these smooth, beautiful disposable utensils a wide range of application in winter as well as summer.



Nationally Advertised
All Year 'Round
To Every Consuming Class



● Made of naturally pure hard wood in the true shape and with the full bowl capacity of metal ware. Strong, rigid, smooth, tasteless, odorless. 4 sizes and OWD Ritefork meeting every food and beverage service need. In bulk cartons, individually wrapped, and in 10-cent cellophane over-wrapped trays. Write for samples.

O.W.D. Ritespoons®

Made only by OVAL WOOD DISH CORPORATION
New York City 17 TUPPER LAKE, N.Y. Chicago, Ill.
The Oval Wood Dish Company of Canada, Ltd.,
Quebec, Quebec



(with apologies to Tennyson)

If there is one place on a milk bottle which should never be promiscuously handled—that place is the pouring surface.

The reason is obvious.

Every drop of milk in the bottle must pass over that pouring surface before it can be used.

No wonder health authorities and public spirited dairies are so insistent upon *sealed* protection of that pouring surface from dairy to home.

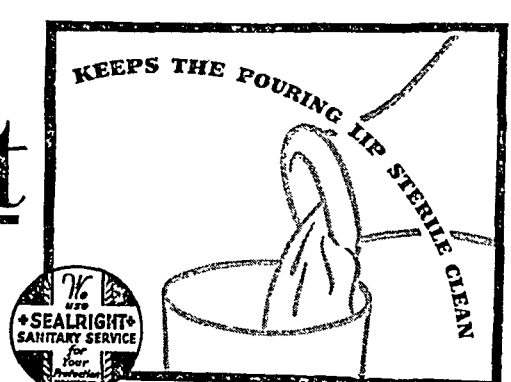
In every state and in many foreign countries, Sealright Sealon Hoods are keeping milk bottles safe against contact with hands, melting ice, rain, snow or dusty air. *They protect all the way to the home.*



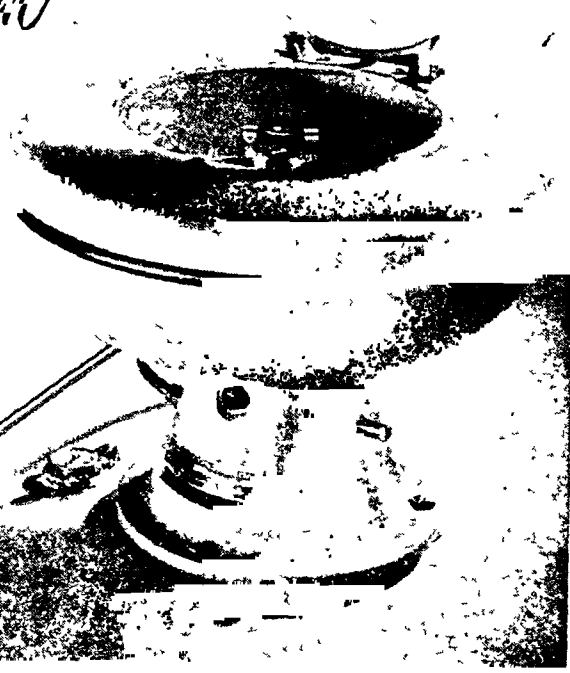
Sealright

MILK BOTTLE HOODS

SEALRIGHT CO., INC., FULTON, N. Y.—KANSAS CITY, KANSAS; SEALRIGHT PACIFIC, LTD., LOS ANGELES, CALIF.; CANADIAN SEALRIGHT CO., LTD., PETERBOROUGH, ONT., CAN.



New Hammertone Finish



The International Clinical Model is now finished outside in durable glistening light gray hammertone and inside in glossy baked white enamel. Both finishes are products of modern paint chemistry — both are baked on at high temperature — both are hard and smooth, do not chip, are easy to clean and resistant to chemicals. Mechanically the Centrifuge is the same reliable product you have known for years.

International
CLINICAL MODEL
CENTRIFUGE

INTERNATIONAL EQUIPMENT COMPANY Boston 35, Mass.

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A.P.H.A.-Year Book 1947–1948. 112 pp. $1.00.

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Check above the publications desired and mail this advertisement to us, together with your remittance to cover (check, money order, or stamps). Members of the Association are entitled to 10% discount on the above

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Order from the Book Service
Advance Payment is Requested

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1790 Broadway at 58th Street New York 19, N. Y.



POSITIVE PROTECTION

COMPLETE CONVENIENCE

● These TWO Dacro P-38 Caps make it possible for dairies to give every customer the protection of Dacro Sealed milk . . . with the added "convenience feature" of a cap that can be removed by hand for the store and school trade. Both caps completely safeguard the purity of bottled milk and provide operating advantages and economies that are welcomed by dairy plant operators.



STEEL . . . *for the Home Delivery Trade*

An air-tight seal as well as a cover cap. Because it is made of steel, this cap is exceptionally strong and durable. It is also tamper-proof. Easily removed in the home with the special Dacro Opener. Makes a perfect re-seal, which may be snapped back on the bottle as often as needed.



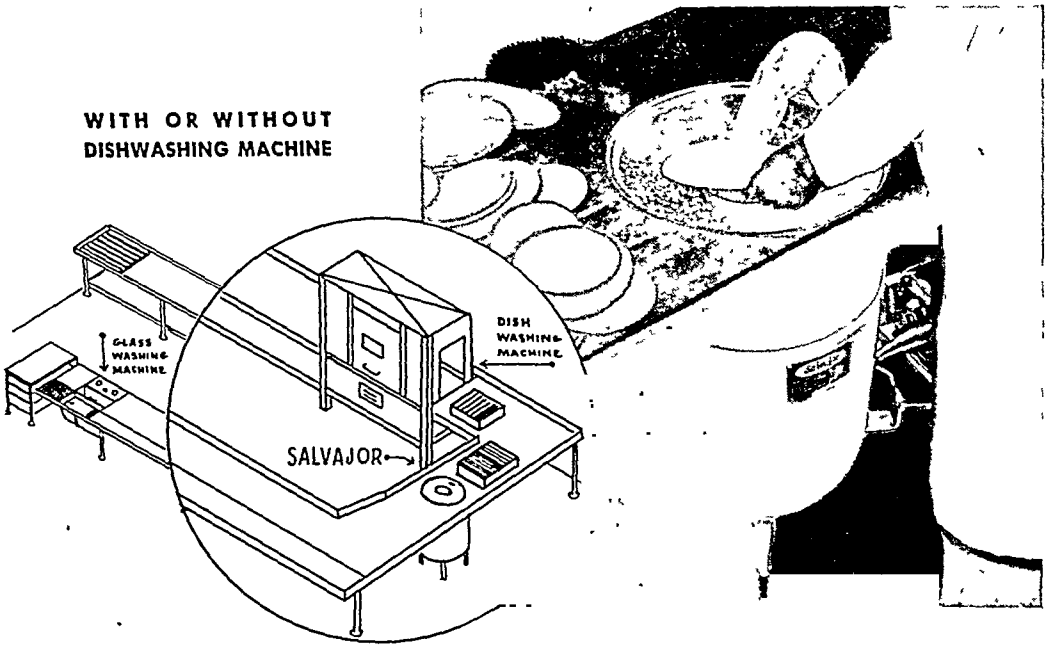
ALUMINUM . . . *for Store and School Trade*

An air-tight seal as well as a cover cap. Because aluminum is somewhat softer than steel, this cap may be removed by hand, thus eliminating the need for an opener in distribution to stores and schools. Makes a fine re-seal, which may be snapped back on bottle as often as needed.

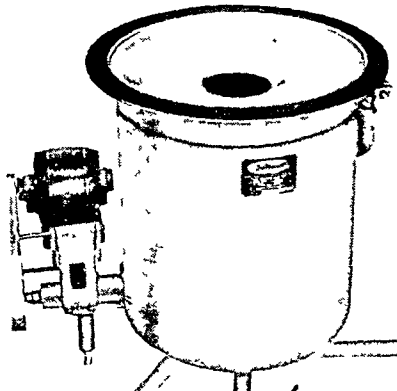
CROWN CORK & SEAL COMPANY

Dacro Division • Baltimore 3, Md.

Dishwashing SANITATION Insurance



AMERICA'S Leading SANITATION EXPERTS Recommend SALVAJOR* the Modern SCRAPPING & PRE-WASH MACHINE . . . .



for any Size DISHWASHING DEPARTMENT

For large or small dishwashing space Salvajor performs the essential pre-wash as it scraps with one constant stream of tepid water.

Salvajor initiates the attack on bacteria at its source. Dangers that lurk in garbage waiting for disposal are neutralized by Salvajor's sanitary garbage disposal basket. Bacteria-laden food particles are kept from the dishwashing machine by the thorough pre-wash.

Designed to comply with every rigid test prescribed by sanitarians, Salvajor is made of easy-to-clean, non-corrosive metal. Even hard-to-reach germ breeding corners and crevices are eliminated in the design.

Salvajor Sanitation Insurance is available to food serving institutions of every size. Public Health officials are invited to write for full details.

*Trademark Reg. U S. Pat Off
Salvajor is protected by U. S. Patents issued and pending.

Salvajor

THE SALVAJOR COMPANY
Dept. P2 118 Southwest Blvd. Kansas City, Mo.

Please forward details of Salvajor Scrapping and Pre-Wash Machine P 2

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CITY..... STATE.....

PROVE CAMEL MILDNESS for Yourself!



R. J. Reynolds Tob. Co., Winston-Salem, N. C.

According to a Nationwide survey:

MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

Doctors smoke for pleasure, too! And when three leading independent research organizations asked 113,597 doctors what cigarette they smoked, the brand named most was Camel!



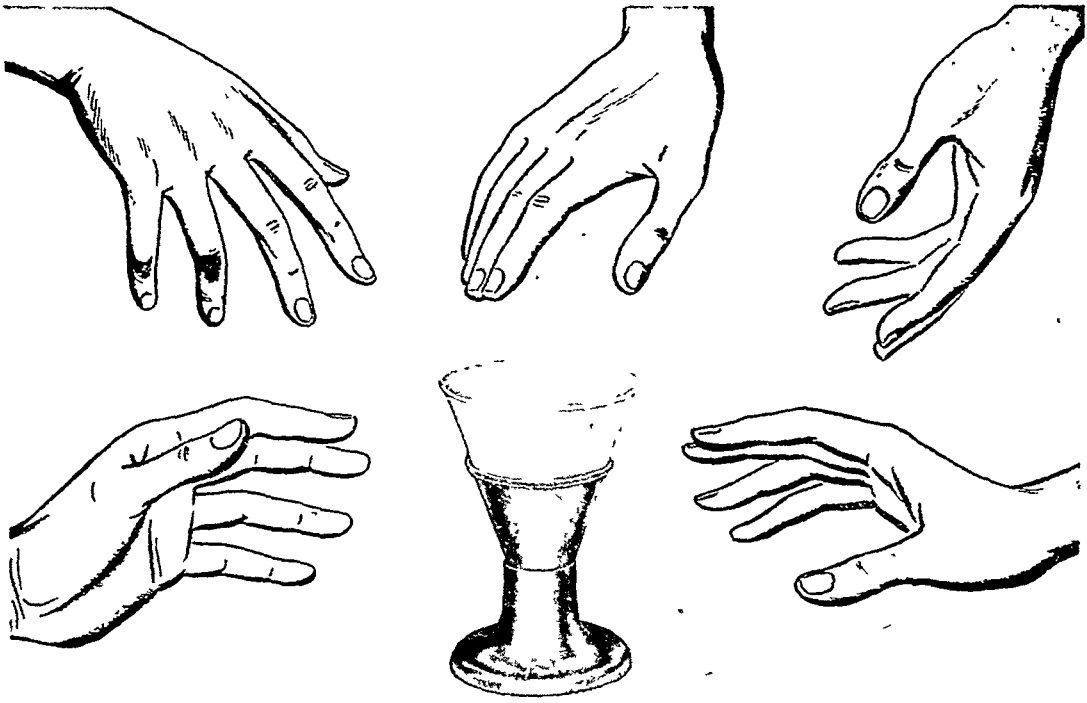
Test for yourself what throat specialists reported when a 30-day smoking test revealed:

"NO THROAT IRRITATION due to smoking CAMELS!"

MAKE YOUR OWN 30-DAY CAMEL MILDNESS TEST. Smoke Camels, and only Camels, for 30 days. Prove for yourself how mild Camels *are!*

Hundreds of men and women, from coast to coast, recently made a similar test. They smoked an average of one to two packs of Camels a day for 30 days. Their throats were carefully examined by throat specialists. And after a total of 2470 examinations—these throat specialists reported *"not one single case of throat irritation due to smoking Camels!"*

But prove it yourself...in your "T-Zone" (T for Taste and T for Throat).



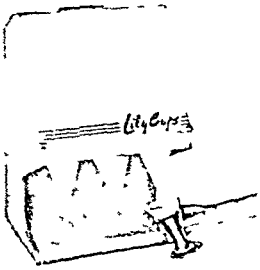
Hands Off!

With the Lily* "Magic Grip" Cup Holder no such sign is needed for fountain clerks! *Hands need never touch the cup.* Clerks just slip the holder over the cup. The "Magic Grip" picks up a single cup—holds it firmly while drink is prepared, served, consumed. —And only ONE size holder is needed for every size cup—from 5 to 16 oz.

Toppling cup stacks? Exposure to dust?—Not with the Lily 3-in-1 Cup Cabinet! This dustproof, satin steel cup housing holds any 3 sizes of Lily Vee Cups*... 700 in all. It's an ideal teammate for the "Magic Grip"... speeds service...eliminates cup losses...saves space.

Recommended for all establishments serving food and drink, this winning team for faster, more efficient fountain service offers economy, speed—*and* more satisfactory sanitation! LILY-TULIP CUP CORPORATION · New York · Chicago · Kansas City · Los Angeles.

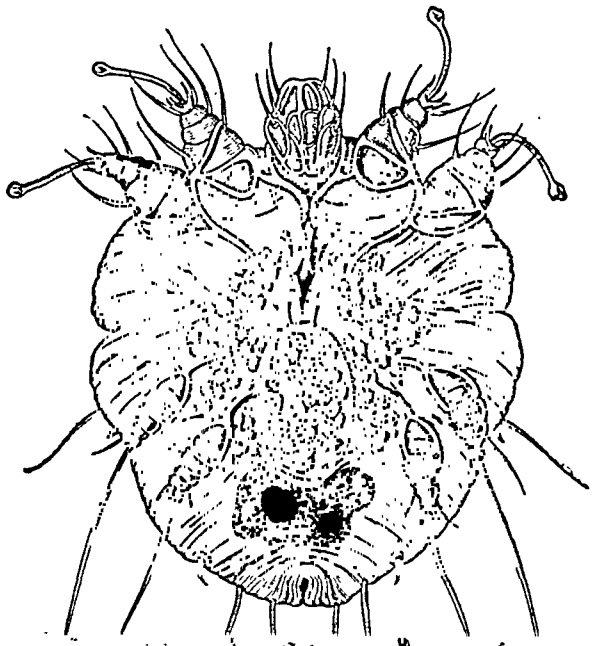
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Do you have a copy of "Soda Fountain Cost Study?" This informative Booklet published by the Cup and Container Institute available to everyone interested in fountain operation...and everyone should have it! We have a copy for you —just drop us a line. 122 East 42nd Street, New York 17, N. Y.

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WORLD'S LARGEST MANUFACTURER PAPER CUPS & NESTED CONTAINERS



A NEW *effective* treatment for Scabies

No longer are slow, greasy ointments with their attendant messiness necessary to treat scabies. In their stead has come quick, easily applied, highly parasiticidal benzyl benzoate emulsion. • • • Writes Mackenzie[1]: "The ease and speed with which the application can be carried out...rapidity of cure, and the almost immediate relief from itching combine to make it a satisfactory remedy from both the clinical and the public health aspects."

'WELLCOME' **BENZYL BENZOATE** EMULSION 50%

Application: Following a thorough soap and water bath, the emulsion (diluted to 25%) is painted on the entire body, allowed to dry, and then reapplied. A warm bath, 24 hours later, completes the treatment.
Bottles of 4 fl. oz. and ½ gal.

1. Mackenzie, I. F.: Brit. M. J. 2:403, 1941.

Literature on request

'Wellcome' Registered Trademark

BURROUGHS WELLCOME & CO. (U.S.A.) INC., 9-11 E. 41st St., New York 17, N. Y.

When writing to Advertisers, say you saw it in the JOURNAL

Increases Load Capacity by 100%

... accommodates 2 instrument trays instead of one

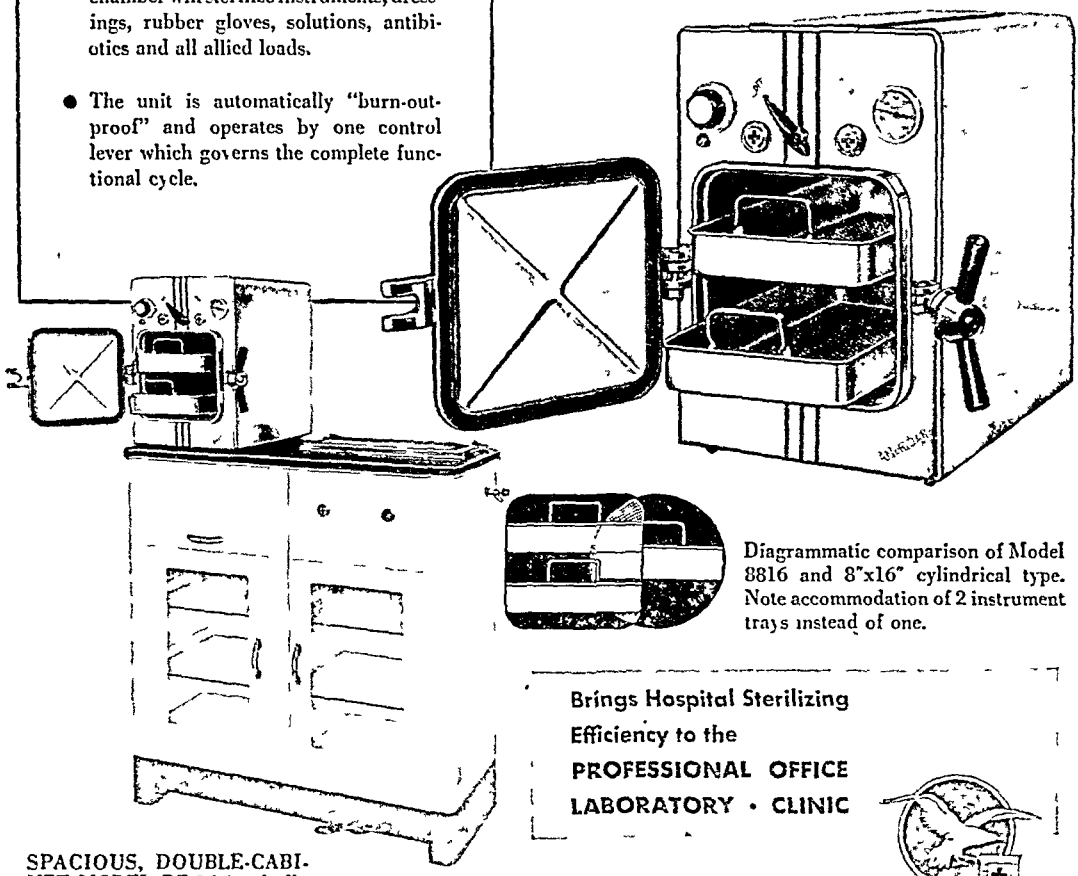
The "American"

All-Purpose JUNIOR AUTOCLAVE

(MODEL 8816)

- Fully automatic and self-compensating for all types of loads.
- Requires no valuable floor space. May be placed on any flat surface and operated from convenient electrical outlet.
- This all purpose unit with 8"x8"x16" chamber will sterilize instruments, dressings, rubber gloves, solutions, antibiotics and all allied loads.
- The unit is automatically "burn-out-proof" and operates by one control lever which governs the complete functional cycle.

Presents a radical departure in autoclave design that meets every requirement wherever a single, pressure steam sterilizer of small size is indicated. Duplicates in every respect the efficient, precision performance of standard size "American" Surgical Supply Sterilizers widely used in hospitals.



Diagrammatic comparison of Model 8816 and 8"x16" cylindrical type. Note accommodation of 2 instrument trays instead of one.

Brings Hospital Sterilizing Efficiency to the PROFESSIONAL OFFICE LABORATORY • CLINIC

SPACIOUS, DOUBLE-CABINET MODEL DB-16 is ideally constructed to accommodate MODEL 8816, thus combining the essentials of a practical Surgical Supply for the private office.

WRITE TODAY for complete information

AMERICAN STERILIZER COMPANY

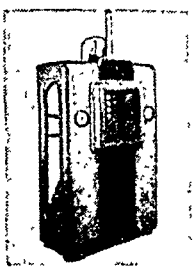
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HORSE and BUGGY METHODS ARE OUT IN SEWAGE TREATMENT TOO!

Sewage treatment without chlorination is like using a horse and buggy instead of a car. It can be done but it requires more time and takes a lot more effort to get the same results.

Chlorination in sewage treatment has proved its worth, through actual use in reducing such troubles as SLUDGE BULKING, FILTER PONDING, SULFIDE CORROSION, and ODORS. Moreover chlorination by W&T means that your installation will be scientifically engineered and carefully tailored to meet your particular needs.

To call on W&T's 35 years' experience in chlorination and start your plant on the road to modern sewage treatment, just get in touch with your nearest W&T Representative, or write Newark 1, New Jersey.

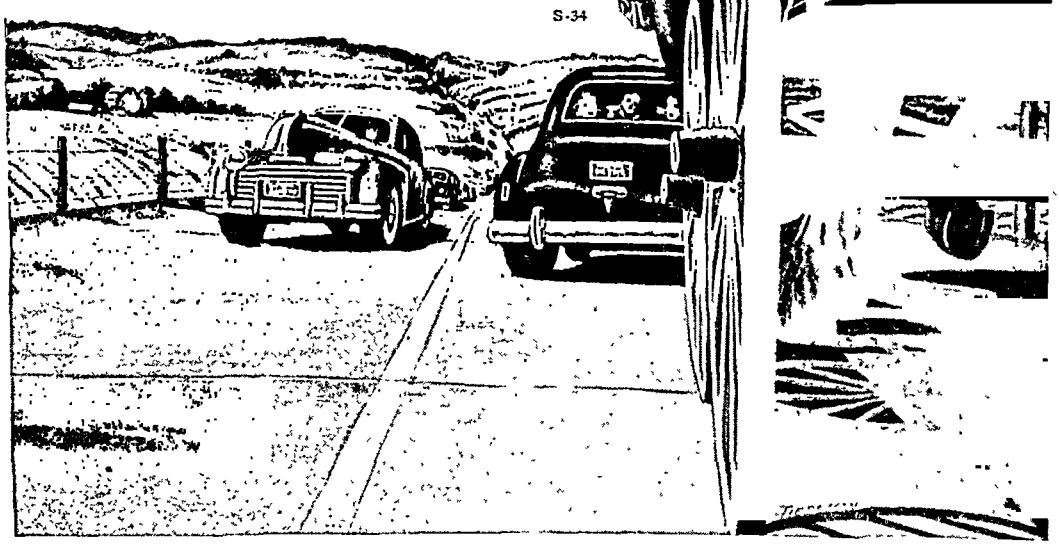


NEW . . . *The Program Controlled Chlorinator with Centrifugal or Aspirator Injector. Manual or program operation to meet all sewage flow demands.*

"The Only Safe Sewage Is A Sterilized Sewage."

WALLACE & TIERNAN
COMPANY, INC.
CHLORINE AND CHEMICAL CONTROL EQUIPMENT
NEWARK 1, NEW JERSEY • REPRESENTED IN PRINCIPAL CITIES

S-34



American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 January, 1949 Number 1

High Points of the Boston Meeting

An Informal Symposium*

CHAIRMAN, DR. R. M. ATWATER: I wish you to know that this is not a rehearsed program, but one which brings you, in a conversational tone of voice as it were, the experience of those who attended each of the sessions and who have been in a position to watch for highlights as they came along. Each of these persons has been asked to present what in his opinion are the highlights of the Section or special interest with which he is identified, and we are going to begin with a representative of the Food and Nutrition Section. The speaker is Dr. Stare, Professor of Nutrition at the Harvard School of Public Health here in Boston.

DR. F. J. STARE: In my opinion, the *pièce de résistance* in the meetings of the Food and Nutrition Section was a symposium yesterday morning on Nutrition and Resistance to Disease, and I think the highlight of that Section was the paper by Dr. Howard Schneider of the Rockefeller Institute.

The nutritional state of the host plays a significant rôle in determining resistance or susceptibility to infection, but it is difficult to demonstrate such effects experimentally or to attribute unequivocally the effects observed to specific nutrients. For the last several years, Dr. Schneider has been doing excellent work on the problem, using mouse typhoid as a test problem. Well aware of the many environmental patterns and characteristics which might tend to condition the results of his experiments, he has painstakingly used extremely rigid controls. He has demonstrated that mice receiving a "natural diet" were more resistant to mouse typhoid than those receiving a so-called "synthetic diet," in which all nutrients were well defined. Survival rates ran as high as 25 per cent higher in the animals receiving a natural diet.

Increased resistance to infection in Dr. Schneider's mice was reproducible in groups of mice receiving the diets containing whole wheat only if the mice were derived from strains which were genetically heterozygous, in other words, mixed strains. Such resistance could not be demonstrated in mice which, by strict in-breeding, had been made more nearly homozygous.

Continuing his studies further, Dr. Schneider has shown that the character of the bacterial population is also im-

* A slightly condensed transcription of informal oral presentation at a symposium held at the meeting of the American Public Health Association in Boston on November 12, 1948.
The speakers have not had the opportunity of correcting their statements in final form.

portant in regard to the effect of a component of the diet on resistance to infection. It can be demonstrated better if a mixed strain of the organism, not a pure strain, is used.

Thus, in this particular host-pathogen relationship, it has been shown that to demonstrate an effect of diet, it was necessary to have: (1) a host population that was genetically heterozygous, and (2) a bacterial culture of varied composition. These conditions, essential for the dietary effect observed here, are precisely those which prevail in practice in the world at large, namely, mixed infections and mixed populations.

The nature of the substance in whole wheat which is effective in increasing survival rates of mice to mouse typhoid has not yet been ascertained.

CHAIRMAN ATWATER: Thank you, Dr. Stare. Before you go away from the microphone, let me ask whether there were other papers on the program that struck you, as a representative of Food and Nutrition, as having particular interest, I mean, those that conceivably concerned personnel and personnel practices and recruitment and finance and all those basic things that are common to us all.

DR. STARE: Yes, another section that was particularly interesting was a section devoted to the techniques and the problems involved in teaching nutrition to medical officers and other types of public health officials.

CHAIRMAN ATWATER: For the second participant, we are going to ask the chairman of the Standing Committee on Research and Standards, Dr. Thomas Francis, Jr., to report on the highlights of the work of the Standing Committee. Dr. Francis, in his regular capacity, is Professor of Epidemiology at the University of Michigan School of Public Health in Ann Arbor. His Standing Committee covers not only the standards on milk and water and sewage and bathing places, shellfish, and other standards of the Association, but a whole area of research which includes the New Coördinating Committee on Laboratory Methods.

DR. THOMAS FRANCIS: Dr. Atwater, I would like to say, before reporting on the activities of the Research and Standards Committee and its highlights, that perhaps the highest light of the entire meeting was, to me, the group which is here this afternoon. There is an old saying that the mind can only absorb what the seat can endure, and I think that the fact that the thirst for knowledge is as great as it is this afternoon is a real tribute to our Association.

The other outstanding thing is the high caliber and critical nature and scientific level of the papers which have been presented on most of the programs that I have had the privilege to attend.

I think it has been a very unusual opportunity even for those who are actively interested in biological research. It has been my privilege, and I appreciated it more the last few days than ever before, to serve as chairman of a committee made up of members who have astounded me with their energy and initiative and the enthusiasm with which they do things.

Under the Committee on Research and Standards, we have one large committee, the Coördinating Committee on Laboratory Methods, which was previously a sectional committee that for many years functioned very effectively under the Laboratory Section. But because of the increasing scope of its work and because of the increasing need for a coördinating committee on other levels, it was made a part of the Committee on Research and Standards.

The activities of this committee have been of outstanding significance during this past year. They have resulted in the publication of a new edition of *Standard Methods for the Examination of Dairy Products,* which has already had a wide sale; of the first book of its

kind, *Diagnostic Procedures in Virus and Rickettsial Diseases*. The committee has displayed increased activity relating to the sanitary examination of food utensils. It has dealt with the continued work of Dr. Winslow and his committee and his associates in the hygiene of housing, a field which has been remarkably progressive and to which they have made handsome contributions.

The third subcommittee that I would like to mention is that on the control of communicable diseases. As you will realize, the pamphlet or small booklet which has been published, now getting ready for its 7th edition, under the auspices of the Committee on Research and Standards and under the active direction of Dr. Haven Emerson, has become really a standard book throughout the world. The last edition, that of 1945, was translated into at least six foreign languages. It has become so accepted as an authority in the review of the problems of communicable diseases that the World Health Organization is actively interested in it. A meeting which has been held during the last week was devoted to revising the report, bringing it up to date with the help of several overseas advisers.

I think it is a splendid thing that something which has grown up within this Association should continue to grow and prove to be such a remarkable contribution not only to the administrative aspects but to the basic scientific aspects of the control of communicable disease.

There are numerous other activities which have continued under this committee but there are a few new ones that are just burgeoning, such as the group representing members of several different associations on the Subcommittee on Air Sanitation. Dr. Alexander D. Langmuir has been asked to serve as chairman of this committee, and they held an organizational committee meeting this week.

I would like also to mention the activities of some of the referees appointed when problems are referred to the Research and Standards Committee as a critical and impartial body. As an example of this type of thing I should like to mention the report of the Referee, Dr. Burgdorf, upon problems involved in isolation hospitals—a very instructive preliminary report which we have asked to have published immediately in the *American Journal of Public Health* because of its application to new developments in medical care and hospital building and management. Then we have referred the problem of dental caries which was discussed a year ago, to a committee who again asked a referee to review the data, and to make a continuing review and survey of that problem.

CHAIRMAN ATWATER: I never hear the recounting of those new activities without a thrill.

I am grateful to Dr. Francis for having summarized so briefly. He has spent many heavy hours with these committees and subcommittees and coördinating groups, and we members of the Association ought to be appreciative of this service that is so generously rendered by persons like Dr. Francis and other committee chairmen and committee members.

We will turn now to a representative from the School Health Section, and I am asking Dr. Dorothy Nyswander, Professor of Health Education at the University of California School of Public Health in Berkeley, Calif., interested in the school health problem, editor of one of the best books on that subject, *Solving School Health Problems*, to tell us what the highlights were in that section.

DR. NYSWANDER: Mr. and Mrs. A.P.H.A., your roving woman reporter has attended every session of the School Health Section, which is one of the younger children of your family. She reports as follows:

Prognosis: every indication of better than average development. You, Mr. and Mrs. A.P.H.A., can look forward to having an offspring which will contribute increasingly to maintain your high standard of professional living and be a strength in your old age.

Plans were formulated by the Section Council to bring as many as possible of the 334 members into active participation on two research projects, using consultant advice from other Sections of the Association. The membership of the Section reflects a broad interest in the health of school children. Voluntary agencies, state departments of health, state departments of education, local health departments, local school boards, colleges and universities are well represented in our membership.

Mr. and Mrs. A.P.H.A., did you see the special exhibit of school health materials developed by the Section as part of the National Publicity Council's offering? If not, you have missed something.

Prediction No. 1: I predict that the School Health Section has set a pattern which will be followed by other Sections in bringing together for display and study during the annual convention the newest and best of materials developed on federal, state, and local levels in their respective fields.

We held round tables on three problems—(1) the Nature of School Health Councils; (2) inservice training counsel in health education for teachers; (3) techniques of counseling children with health problems—and kept eager-beaver participants busy for an entire day. Your reporter noted that participants from at least five other Sections came early and stayed late at these round tables. Your reporter saw skillful use of various discussion techniques, including rôle playing, to get concrete situations for analysis by the groups.

What is the difference between giving health advice to parents and children and acting as a health counselor to them? The group was motivated to spell out this difference after hearing this story:

A teacher had asked for short essays about Socrates. One boy handed in these three cryptic sentences.

"Socrates was a Greek.

"Socrates went around giving advice to people.

"Socrates was given poison by the people."

School Health Councils are not established by decree of either school or health department administrators. They are outgrowths of the needs of real people coming to recognize that real health problems demand that many people, including students, analyze the problems and take action together in solving them.

The lecture method of inservice health education for teachers is probably the least effective of the many ways of helping teachers understand the children's needs. The workshop and the clinical case-study methods rank high.

Prediction No. 2: I predict that the round table discussion method for national convention programs will be adopted by other Sections, and I predict further that, unless other sections invest in exploring new methods of group work in their Sections, these Sections will find some of their members transferring to the School Health Section.

Research is fundamental to sound administrative practice in any field. New research related to the health problems of the school-age child at this meeting must be given serious consideration by those responsible for school health programs.

Therefore, *Prediction No. 3:* I predict, Mr. and Mrs. A.P.H.A., that within the next few years, we will see new policies regarding absenteeism from school because of illness and more intelligent use of the information about the causes of such illnesses by teachers and nurses in their work with children.

I predict further that when the evaluation of various audiometric testing procedures for school children is completed, we will see drastic revision of hearing testing programs throughout this country, based on the research presented at one of the Section meetings.

Mr. and Mrs. A.P.H.A., the physically handicapped child has taken a beating for many years. His well-wishers have oftentimes done him as much harm as the people who forgot that he existed. I call to your attention the booklet *Children with Special Health Problems,* which was highlighted in one of our joint sessions. You can obtain it from your local Tuberculosis and Health Association. The School Health Section is proud to have participated in a program in which medicine and education have agreed upon the fundamental principles relating to the care of the physically handicapped child.

Prediction No. 4: I predict that many outmoded ideas and practices pertaining to the physically handicapped child in our schools will disappear wherever active members of the family of Mr. and Mrs. A.P.H.A. take to heart the fundamental concepts presented at this national meeting and embodied in the bulletin *Children with Special Health Problems.*

My informants tell me that the school health program can only be successful when its various parts and its total structure evolve from the thinking and action of many agencies. Kansas reported a study of coöperative effort along these lines which should be read by every member of your family who works in a rural area. Minneapolis reported an exciting venture in two demonstration schools of putting theory into practice. The president of the National Conference for Coöperation in Health Education laid on the line the purposes and accomplishments of this Conference during the past ten years. The Joint Committee of the National Education Association and the American Medical Association reviewed scientifically the principles jointly arrived at in making health appraisals of school children. The guide lines as to the fields in which coöperative endeavors are possible and valuable are ours to follow.

Fifth and final Prediction: I predict that the future will see no substantial forward-looking program of health services or health instruction developed in any city or county of this country which is not an outcome of the coöperative effort of workers in education and health departments, together with their colleagues in the voluntary health agencies and the professional associations.

Signing off until October, 1949, New York City, when we will again give you the latest developments in school health programs.

CHAIRMAN ATWATER: We are moving now to the spokesman for the Industrial Hygiene Section, and I am asking Mr. J. J. Bloomfield of the U. S. Public Health Service, Division of Industrial Hygiene, to report on the highlights there.

Mr. Bloomfield has served on two occasions as secretary of the Industrial Hygiene Section and has also been chairman of that Section. He is a competent observer.

J. J. BLOOMFIELD: The first meeting of the American Public Health Association which it was my privilege to attend was right here in Boston in 1923. twenty-five years ago.

It seems to me that industrial hygiene in my own quarter of a century experience has gone a long way. In the early days, the field of industrial hygiene was a very limited one. We were concerned with finding out the basic fundamentals, investigating and evaluating the strictly occupational diseases. We were then concerned primarily in learning about the etiology of some of these diseases, such as silicosis, about which we knew very little at that time.

Today, we are concerning ourselves with such things as carcinogenic agents in the industrial environment and maximum allowable concentrations of hazardout substances. A host of chemicals have come into play during the past twenty or twenty-five years, for example, ionizing radiation, which is such an important issue, the discovery of new diseases, such as Shavers' disease, and many other new problems that have come in the wake of industrial progress and technological advance.

CHAIRMAN ATWATER: Would you mind telling us what the disease is that you mentioned just now?

MR. BLOOMFIELD: Shavers' disease is not a disease caused by shaving. It is named after Dr. Shaver, who first reported it in Kansas, and is caused by exposure to very fine dust created in the process of converting bauxite in the aluminum industry. It seems that this very fine dust, when inhaled over a certain period of years, causes silicon damage to the lungs. The greatly widened breadth and scope of our field is not only reflected in the quantitative and qualitative character of our work but also in the increasing recognition which it is receiving. A few years ago, only a few organizations—the U. S. Public Health Service, the U. S. Bureau of Mines, the newly created Department of Industrial Hygiene at the Harvard School of Public Health, and a sprinkling of states—were concerning themselves with industrial hygiene problems. Today we have industrial hygiene divisions in practically every state of the Union, in large cities and counties, in large industries with their own research and control departments, in insurance companies, and in a host of other organizations.

Industrial hygiene has indeed grown with the times. It has attained a "new look" along with our fashions. Originally we were concerned with the health of the worker exposed to mercury and lead and silica and so on, and to an increasing array of various chemicals and processes. Today we are even concerned with agriculture. We heard an excellent paper by Dr. Axelrod on the work he conducted among the farmers. Perhaps you think it is strange that industrial hygienists should be concerning themselves with the agricultural population, but farming in this country has become a large industry. We have more than 8,000,000 people in that industry. The farmer is using many machines, insecticides that are poisonous and many other substances that are injurious to health. The migratory farmer is especially subject to disease because of his transitory life and his lack of sanitation facilities; plans are now under way to solve some of the problems among those workers.

On the overall scene, there is a keener appreciation of the importance of the worker's health. The preservation and maintenance of industrial health has various implications. To management it means greater profits and new outlets. To the worker it means employment and a higher standard of living. To the consumer, to you ladies and gentlemen, of course, it means new gadgets and luxuries, television, and other modern inventions. But to the industrial hygienist, technological developments mean headaches because of the potential hazards inherent in new substances and processes, as, for example, radiation energy, new solvents and plastics.

World War II gave impetus to the adoption of a new concept of the "total man." Previously, we had attempted to disassociate the man in his working environment from his home and community environment. The health of the worker during his eight hours on the job seemed to be the sole concern of the industrialist. If he picked up a pneumonia germ somewhere outside of the factory, well, that was too bad for the worker. Industry was not concerned. The war production race, however, with its stress on man power conservation,

revealed that the worker's illness, regardless of its origin, was always costly to management. Sickness absenteeism was expensive in terms of unfilled orders, necessary substitutions and other considerations. Yielding to the pressure of circumstance, the field of industrial hygiene broadened and is continuously expanding to meet the needs of the times. That is why, yesterday, at our joint session with the Medical Care Section, you heard some papers on medical care and the rôle of the industrial hygienist in medical care. This is the result of labor's vociferous cry for adequate medical care for themselves and their families and of management's increasing recognition of the values and economic practicality of such services.

There are still other problems which we must objectively look at and scrutinize and take stock of.

Those of you who were at the joint session of the health officers heard the facts in Dr. Selby's excellent paper in which he pointed out that within his own organization, he had data on more than 300,000 workers, that the most important problems were in the field of rheumatism, arthritis, heart ailments, cancer, and diabetes. These are the chief killers today, and I say to you that industrial hygiene offers a rare opportunity to make an attack on these diseases.

The work of the industrial hygienist is necessarily a team work operation, cutting across all lines. Although he plays a distinct and specialized rôle in the field, he may still serve his colleagues by acting as a spearhead to bring their services to industry's doors. I hope that you will let the industrial hygienist help you to do your job and that you will lend him your assistance with his, so that we can all exert the effort we need toward the preservation and maintenance of public health.

CHAIRMAN ATWATER: Our next spokesman is Dr. Leroy E. Burney, State Health Officer of Indiana and Chairman of the Subcommittee on Personnel Administration.

DR. L. E. BURNEY: The very fine report that Dr. Nyswander gave and the interesting manner in which it was presented merely confirms the conclusion that we have a great deal to learn from health educators.

Recruitment of personnel is the most acute problem facing the public health professions. It is not enough, however, just to recruit personnel. We must utilize all methods available to select qualified personnel. The Merit System Service of the American Public Health Association was established in 1941 to aid in this problem. Its activities have been directed toward developing written examinations for the various categories of professional public health workers.

This has been done with the aid of consultants in medicine, nursing, engineering, veterinary medicine, and other public health groups. Psychologists, psychometricians, and statisticians working closely with subject-matter specialists, construct the test items, develop examinations and their capacity to determine the skills and potentialities of the examinee. The development of these examinations is a dynamic one; a continual effort is made to exclude poor items and establish new and better ones.

It is especially significant that this program has been developed by the organization representing the professional public health workers of our country. It is not dictated by any governmental group. Its consultants and reviewers are recognized practical experts in the various fields of public health and work under the guidance and advice of a voluntary committee of members of the American Public Health Association and outstanding leaders in the personnel field.

Interest in this Merit System Service is most encouraging. At the special session on Thursday morning, the largest crowd ever to attend a discussion on

this subject was present. Most of the group of approximately 300 remained for the duration of the three hour meeting. The life story of an examination for public health workers was the theme. The testimonial of three examinees: health officer, nurse, and engineer was especially interesting, and Dr. Neupert, the Health Officer of Wisconsin, presented a splendid discussion of the program from the administrator's viewpoint.

The exhibit at this convention has been a most popular one. Approximately 450 people have taken an average of two of the six tests available. Noteworthy is the fact that, although a few of the individual items have been criticised, almost everyone has expressed his enjoyment in taking the examination and has approved the technique.

Let us remember that this is a program of our own organization, the American Public Health Association, in an effort to help us solve the problem of intelligent selection of personnel. Understanding and support are required of each one of us to make this splendid effort a continuing success.

I for one would like to commend very heartily the very fine work that Dr. Long, Mr. Frasher, and other members of the staff of the Merit System Service are giving in this program.

CHAIRMAN ATWATER: Again it is a pleasure to see how the interests of the American Public Health Association have broadened to include an area which a few years ago was not represented in the Association structure.

Our next speaker is the representative of the Epidemiology Section, Dr. Thomas D. Dublin, who has recently become the Executive Director of the National Health Council in New York. He speaks for the Epidemiology Section.

DR. T. D. DUBLIN: In trying to gather my thoughts together in preparation for this presentation, I suddenly realized that by seeking the highest points I was losing sight of the mountain range, if you will, that these programs represented. The quality of the presentations was in my opinion, and in that of many others with whom I have spoken, unusually high. It would be difficult to single out any one, or, any few as particularly outstanding. The most impressive thing in this annual meeting, and particularly as it relates to the Epidemiology Section, is the broad perspective, the broad panorama which is now being included in the Section meetings.

It is particularly interesting to me to see how so many people from so many diverse fields are making significant contributions to the solution of problems which we have included in our discussion in the Epidemiology Section: men from the laboratory, from the field, from administrative positions, all have come together in this Section and have contributed a multiplicity of perspectives to our understanding of the problems which are under consideration. At the first session on influenza, a large group of individuals, six different groups of workers, each representing a different part of the country, a different laboratory, a different area or field of investigation or administrative problem, in fact, even a representative from the international field, attempted, and very successfully, to throw light upon this very difficult and important problem.

Similarly, in our concluding session this morning we considered a new disease, or rather, a disease just recently recognized in this country, that of "Q" fever, an infection which in a very brief period of time has been widely and carefully studied. It is, I think, a source of real gratification to see how so much has been learned of significance in dealing with a disease, unrecognized and unfamiliar to most of us, in a relatively short period of time.

In these and other sessions, the laboratory man, the field worker, the admin-

istrator, the educator, and various others had significant contributions to make to the solution of chronic disease problems, cancer, diabetes, tuberculosis, histoplasmosis, the dysenteries, air-borne infections, syphilis and gonorrhea.

In summary, I would say that to me the high light of this Section was not only the unusual quality of the presentations and their broad perspective of epidemiology, but rather that these sessions, particularly this year, emphasize how important it is for us to meet at least annually to merge our interests, to discuss common problems, and to throw all of our energies and efforts into the study and the working out of methods for the control of those disease and health problems with which we are all confronted.

CHAIRMAN ATWATER: The next speaker is Dr. Vlado Getting, well known to you as Massachusetts State Commissioner of Public Health. In this connection he speaks in his capacity as Chairman of the Committee on Eligibility of the American Public Health Association.

DR. VLADO GETTING: The Committee on Eligibility consists of one Fellow from each Section plus a chairman elected by the Executive Board. Its function is to pass upon the applications of Fellows, of members, of Life Members, to pass upon the application of state societies which wish to be affiliated with this organization, and to make recommendations relative to the election of Honorary Fellows.

Our organization has grown this year very satisfactorily. There are now over 11,500 members and Fellows. This year we have added 164 Life Members. This was as a result of the fact that the new Life Membership dues became effective January 1. Even at the present rate of $200, Life Membership is a bargain, and I recommend it to each of you, especially for Fellows, who receive a 6 per cent yield on an investment for the first 17 years, after which it costs them nothing.

Two hundred and fifty new Fellows have been added to our list. The number of new members has not been quite as large as previously, but over 1,200 were added. Two new state societies have become affiliated with this organization, those of Minnesota and Washington.

Finally, the committee had the privilege of recommending for election as Honorary Fellows three well known individuals: Dr. V. Mary Crosse of England, known to all of us for her work on prematurity; Dr. Brock Chisholm of Canada, now Director General of the World Health Organization; and Dr. Karl Evang of Norway, who is chief of the Norwegian Public Health Service.

The Committee on Eligibility wishes to call to the attention of qualified members that they should seriously consider becoming Fellows and taking advantage of the privileges offered to Fellows.

CHAIRMAN ATWATER: Our next speaker, Mr. James Gibbard, who is Chief of the Laboratory of Hygiene, Department of National Health and Welfare, Ottawa, Canada, is a seasoned representative of the Laboratory Section.

JAMES GIBBARD: I think one of the highlights from the standpoint of the laboratory workers has occurred within the last hour or so, and that is the number of representatives of other Sections who have seen fit to refer to the work conducted by the laboratory group.

One of the difficulties that I am faced with at the moment is that we feel it is rather difficult to evaluate adequately the highlights of any particular stage. In that connection one might refer to an occurrence some twenty-five years ago when this Association met in Boston, at which time Dr. R. L. Kahn presented his technique for the Kahn test. Although not present at that time,

I am informed that it created considerable discussion, but one wonders whether it would have been referred to as a highlight of the 1923 meeting. How can we accurately predict where emphasis should be placed at the present time?

Some of the papers that have been presented are of highly technical nature, and most of us are in no position to evaluate the significance of such work. I think, however, it is rather remarkable that the Laboratory Section and laboratory workers in general have become involved in so many other fields of activity. You have heard references to "Q" fever which in our estimation was one of the most important presentations at this meeting. You have heard references to problems in nutrition and the studies on infectious diseases—again, with participating laboratory workers.

If one were to take an impression of the highlights, or rather, an impression of interest at this meeting, it would be that the laboratory workers as a group are vitally concerned and, to say the least, a bit worried about the effect of health grants for programs not primarily in the laboratory field. They all visualize a tremendous increase in demands for work in the laboratory and I trust that workers in other public health fields will not forget the important role that the laboratory must play, has played, and we hope will continue to play, and the necessity of supporting and continuing efforts in the development of high standards of work. Funds must be made available for the conduct of laboratory and research work if other wider problems are to be solved.

CHAIRMAN ATWATER: Have you any prediction as to those things which twenty-five years from now will look as important as the Kahn test for syphilis looks in 1948?

MR. GIBBARD: As a guess, one would feel that probably the application of radioactive isotopes in the elucidation of problems of infection, immunology, and nutrition. Perhaps we will look back in twenty-five years and wonder at the importance of the paper that was presented on that subject at these meetings.

CHAIRMAN ATWATER: The Laboratory Section next year will celebrate its 50th anniversary. It is one of our senior groups and we look forward to another good program.

The speaker for the Health Officers Section, Dr. Herman E. Hilleboe, has been called home on an emergency and his place has been taken by Dr. William A. Brumfield, Jr., his first deputy.

DR. W. A. BRUMFIELD: I shall speak on one point discussed at the Health Officers Section, namely, the question of recruitment of personnel and personnel administration, because I feel this is by far the most important problem that is facing the public health administrator.

A panel on this subject was held on Tuesday afternoon. I shall give you briefly the points of agreement of this panel. First, it was agreed that personnel administration is a specialty and in every large health organization, certainly every state department and large municipal or county health department, there should be a special office of personnel administration, this office to be directed by a well trained and competent personnel administrator.

It was agreed that the services of the officers in these large organizations should be made available to smaller organizations within the framework of the state so that the services of these specialists could be available for those organizations in which such services would not be practicable on their own money.

It was agreed, secondly, that recruitment of personnel is one of the most important problems confronting health officers today. This recruitment of personnel is not confined solely to trained

personnel who can be put to work, but it also relates to persons who may be recruited for training, and who eventually can be put on the job.

It was agreed that the low salaries which are offered in health positions is one of the foremost reasons for the inability to recruit and train personnel at this time.

Third, the matter of selection of personnel: It was agreed that the merit system should be followed in so far as possible in the selection of all types of professional personnel: nurses, health educators, engineers, and physicians; and that examinations of both the written and oral type are applicable to the selection of personnel.

It was also agreed at this time that we should not limit examinations to groups of persons who are competing against each other, but should set up a system of continuing examinations which would permit individuals to be examined, or to compete against a standard.

It was also agreed that training of personnel should not be limited to the schools of public health or other types of institutions giving training to professional personnel in the field of public health, but that in each of the health departments there should be established an inservice training program which will provide refresher instruction to personnel in the organization.

Fourth, it was agreed that conferences between members of the staff are extremely important in the maintenance of morale in the organization and that such conferences should be held by the chief of the service at regular intervals and should be held in such a manner that the personnel from top to bottom could discuss the problems which confront them in order to get such problems solved.

It was agreed, fifth, that provisions should be made in all health organizations for increases in salary of personnel as they become more experienced and therefore more valuable; also, that, wherever possible, provisions for promotions should be made in order to keep competent people on the job.

And, last, it was agreed that when one had completed his work in the department and was eligible for retirement, or was forced to retire, provision should be made for a retiring annuity which would permit him to retire gracefully.

CHAIRMAN ATWATER: We shall now have a few words from a representative of the Committee on Administrative Practice. Dr. Wilton Halverson of California is chairman of that committee, but he had to be in Geneva this week for the meeting of the WHO Executive Committee. Dr. Roscoe P. Kandle, Field Director of the American Public Health Association, New York, will summarize the affairs of the committee.

DR. R. P. KANDLE: One of the things that struck me about the work under the C.A.P. is that the tempo and variety of interests and products of public health remind us that it is still a vigorous adolescent. I would like to remind you that the C.A.P. is composed of 150 of you and your colleagues who work very hard throughout the year, that there are many seeds sown during each session which germinate rapidly and grow most extensively. It is not just an annual meeting and then another meeting next year. There is a continuity in the growth.

One of the efforts of this committee is through its Subcommittee on Local Health Units. The National Health Council carries most of the action program now and, in spite of the trouble we have with regard to personnel, we are getting additional health units. For example, Indiana now has passed its first referendum. Admittedly, the campaign by Dr. Haven Emerson, Chairman of the Subcommittee, so well con-

ducted to extend health units, does aggravate the personnel recruitment problem, but I remind you of the citizens' support and interest, which is being gained by this campaign. It emphasizes the need for better salaries, and salaries *are* advancing in public health.

Evaluation of health practices is a tough discipline, and not a very pleasant discipline. Ofttimes it disturbs our complacency and upsets some of our choice illusions. Yet, 187 health units throughout the United States and Canada filled out the *Evaluation Schedules* this year and submitted them to the Association for appraisal; and a great many others used the schedule without formally submitting it.

Massachusetts, California, and Pennsylvania courageously requested extensive administrative studies at the state levels. Massachusetts and California have made significant use of these studies. The Pennsylvania study is just now being completed and we have good reason to believe that the Commonwealth of Pennsylvania means to make similar progress in providing better public health services.

The Engineering Group, a subcommittee under the Committee on Administrative Practice, has developed and distributed an *Evaluation Schedule* for sanitation, which is of great interest to everybody in the environmental sanitation field and is being quite widely used already.

A similar kind of special schedule is being prepared by the Public Health Dentistry Subcommittee, and we look forward to that with a great deal of interest.

In the technical field we cannot overlook the fact that a five year study group on multiple antigens is bringing out a report which was discussed yesterday and which will be of intense interest to every health officer and epidemiologist administrator in the field.

The Iodized Salt Bill in the House of Representatives in Washington was rejected in committee, and it got nowhere. In spite of frustrations, however, that committee continues to work with amazing persistence and patience, and they provided us with one of the most interesting of the scientific exhibits, which I hope you saw.

One of the things that are coming out of the Study Group under the Subcommittee on Evaluation of Administrative Practices is the statement on control of typhoid carriers which will be of good service to all health officers.

Just to add to what Dr. Francis said about the control of communicable diseases, there was a small but very important study group that worked all of last week-end and are going to bring us what looks to me to be one of the best things that have happened for some time, a report which clarifies the knotty problem of streptococcal infections and scarlet fever.

Accident prevention through health departments is going forward, and we had a good exhibit on that point by the National Publicity Council.

The important study of Public Health and Bedside Home Nursing Services was published last January. The Cost Study that began in 1946 in Public Health Nursing is bearing real fruit and getting more active every month.

You know a great deal about the Subcommittee on Medical Care, and I am sure you are well aware of their activity, through this Annual Meeting program. One thing I would like to point out is the joint committees, studying problems in medical care. Let me pay particular tribute to the one which Dr. Ellen Potter now heads, the joint committee on chronic diseases which has among its members representatives of the American Hospital Association, the American Medical Association, the American Public Welfare Association, and the A.P.H.A. They have worked long and hard this week.

EVELYN DUR

So we are making progress through this Standing Committee and I think we can count on the C.A.P. to deliver more goods.

CHAIRMAN ATWATER: Our next speaker represents Public Health Education, Dr. Granville W. Larimore, Director of the Division of Public Health Education in the New York State Department of Health.

DR. G. W. LARIMORE: There are three points in the Health Education Section program specifically which I would like briefly to call to your attention. The first of these is a realization on the part of public health educators of the necessity for what we have come to call "the techniques of community organization" for achieving many of the objectives of present-day public health programs. As we shift to the chronic disease problems and into those problems which are individual in nature, which require the active coöperation of all individuals, we face the need for people to solve their problems for themselves and the necessity for greater and greater concentration on these techniques.

This was brought out in the *Journal* in a paper by Dr. Turner, and also by papers concerned with Public Health Councils by Dr. Ferree and Mr. Lifson and others. The health council does represent a very effective technique for community organization for health within the community.

In Dr. Ferree's paper there was a little verse which seems to me to epitomize what a health counsellor in a community organization can do. I would like to read it to you:

> A horse can't pull while kicking.
> This fact I merely mention,
> And he can't kick while pulling,
> Which is my chief contention.

The second highlight of our session was a realization on the part of health education of its responsibility in the inservice training of public health personnel. We feel not only that public health education has a role in selling the health departments to our staff through programs of orientation, but also in improving the skill of our workers through on-the-job training, particularly in these days when personnel shortages are critical and we must make the best use of the personnel that we have.

The final point I would like to bring to you is the paper which Dr. Iago Galdston of the New York Academy of Medicine gave on "Motivation in Health Education." What is it that makes people have health habits, and how can we influence good health habits and how can we influence behavior toward achieving better health habits? Dr. Galdston quite frankly took health education to task for its emphasis in the past, and he feels—and I feel that we must agree with him in part, at least—that facts alone will not necessarily motivate people to achieve better health.

He refers to older techniques as "exogenous motivation." It tells people what to do, and there is nothing people resent as much as such instruction even if they are faced with death. We realize that "exogenous motivation," this business of merely presenting facts that are not related to the individual's own activity, is likely to fail.

The individual wants to eat, to move, to rest, to serve his body's needs. When he is a little boy he wants to grow big and strong and to be able to do things: to run, to play, and to acquire skills, to be an athlete, and so on. Then when he is a young man or woman he wants to be attractive, to be liked, to be popular, to have friends, to advance in his or her studies or work or ambitions. When grown older in adulthood he will want love, sexuality, marriage, and a home and children.

People will want these and many

other things, but they will not want health *per se,* that is, health pure and simple, unless they are hypochondriacs.

If we are going to teach health and influence behavior and develop good health habits, our teaching must be geared not to teach health *per se,* but to teach the individual how to attain his immediate goal. This Dr. Galdston designates as "endogenous motivation."

CHAIRMAN ATWATER: The spokesman for the Vital Statistics Section is Dr. Forrest E. Linder of the World Health Organization.

DR. F. E. LINDER: Statisticians like to use statistics. One important fact about our Section this week is that we are now forty years old. Forty years is not an age of infancy nor an age of senility, it is an age of maturity, and I think the maturity of the Section can be demonstrated by one fact: of five sessions which the Section held this week, four were in collaboration with some other unit of the A.P.H.A. or some related organization.

This maturity shows that the statistician is more and more coming to fill his proper role as an active collaborator with all the other health activities to which he can make a contribution. I cannot mention all of the twenty-five excellent papers that were read at these sessions, but I would like to point out two things that I think may be of particular interest to you.

One of these refers to the standardization and revision of the *International List of Causes of Death.* You have known that for a long time there has been an international coöperative effort to attempt to standardize the statistics on mortality. This new revision, which is a radical departure now incorporates many more titles arranged in such a way that the same list can be used equally well for mortality and for morbidity.

The statistician is going to have many headaches in adopting this list, and when the list is put into use we are going to have to explain to all of you many curious and difficult influences upon time trends. But after that difficult period is over I am sure that we will be on a new road for laying much sounder factual bases for the type of statistical data which public health workers need.

One other point in our Section I think is worthy of mention in particular, but I am a little timid about mentioning it. Since last election day statisticians do not boast too much about their sampling activity and about their polling activities. Nonetheless, if medical science stopped whenever it made a spectacular failure, or whenever its scientific concepts and advice were utilized for commercial gain, it would have stopped long ago. The science of statistics does not propose to stop at this time, and for that reason we are thinking and studying and trying to find out how the techniques of sampling and the techniques of statistical surveys can be applied to the problems with which you are all concerned. I think that before many years you will find we are making a contribution to that field which you will all find invaluable.

CHAIRMAN ATWATER: The spokesman for the Dental Health Section is Dr. Walter J. Pelton of the U. S. Public Health Service.

DR. W. J. PELTON: This year we public health dentists made great effort to plan our program so that each speaker or each group of speakers would make a contribution to the total program of the American Public Health Association. Our first theme was nutrition, diet, and dental caries, which I am sure we have not heard the last of yet.

The outstanding paper on "A Method of Evaluating Dental Programs" at our meeting with the American School Health Association was in reference to

the method that Dr. Kandle had in mind when he referred to the evaluation of dental programs. I think in the near future the evaluation method that the C.A.P. produced will be a notable "first."

The cancer session which we held was rather important and we included the whole field. It marks a very definite departure in public health thinking in that dental programs are now associated with geriatrics as well as pediatrics.

In connection with caries programs a paper was presented which developed sparks, heat, and considerable argument. The topic of that paper was "The Use of Auxiliary Personnel in Dental Programs," the development of the idea of using a dental nurse as an assistant to a dentist operating on a patient's mouth.

The Section has been active in the last three or four years in getting out a book on *Public Health Dentistry*. I am happy to announce at this time that the Saunders Company predicts that the book will be published about January, 1949. At this time I would like to thank the members of the American Public Health Association, particularly the staff, and especially Dr. Atwater, for his guidance and help and assistance in preparing this material.

CHAIRMAN ATWATER: I am glad you can report that the volume on *Public Health Dentistry* is as near completion as this. This is a real achievement, and you are going to be proud of it. The next speaker represents not only the Section on Maternal and Child Health, but he is also a spokesman for the new Section on Medical Care created on November 10 by the Governing Council. Dr. Dean W. Roberts is the Director of Medical Services in the Maryland State Department of Health in Baltimore.

DR. D. W. ROBERTS: I am glad now that the new Section on Medical Care can take away the honor from the Dental Health Section of being your newborn. There are some, I believe, who feel that perhaps this is a premature delivery, but I believe the more than 500 individuals who petitioned for the creation of this Section, most of whom were previously non-members of the Association, will assure you that it is a full-term Section which most certainly will not fall stillborn but will be lusty and vigorous in the days ahead.

In the program of the Child Health Section the highlight to me was a symposium on prematurity. There were two particularly excellent papers presented by Dr. Katherine Bain and Dr. Helen M. Wallace, but I would like to discuss the symposium as a whole.

The enormous importance of prematurity as a public health problem was well documented. This is the principal cause of infant mortality in virtually all parts of this country. About 6 per cent of all babies born are born prematurely. Over one-fifth of these die. In New York City 50 per cent of infant deaths are premature infants.

Throughout the country, particularly in New York, in Colorado, and Louisiana, we are seeing demonstrations of programs developing which, although they have not yet brought full answers, give promise of throwing a very considerable light on the problem of prematurity and what to do about it. We need to know what roles are played by economic factors, by nutritional factors, and by emotional factors associated with prematurity. Once we know more about the causes we can add more emphasis to prevention.

Even with our present knowledge we can intensify our program for providing prenatal care and adequate diet for pregnant women. We must work out good systems of care for the infants who are born prematurely, so often beyond the capacity of individual families, physicians, hospitals, or other single agencies. The program must involve the participation and coöperation of a

great variety of community resources; and will require public subsidy. The program must emphasize the essential nature of investigation of the homes to which the premature infant must return, preparing the home for the return of that infant, the teaching of the mothers so that when the baby is at home she will meet the needs of the infant with confidence.

Dr. Wallace very dramatically drew a picture for us comparing the facilities and the practices of a group of hospitals in New York City where little or nothing is done for the care of the premature infant compared with what is done in a modern premature infant center. The gap between what we do for premature infants and what we know we should do is vast, and we are only beginning to make a start to close that gap.

Moving from the Section on Maternal and Child Health, I would like to comment on one session that was sponsored by the Subcommittee on Medical Care.

That was a panel, a series of papers dealing with the quality of medical care. All too often proposals for medical care programs have so concentrated on the financing of medical care that the subject of the kind of medical care has been neglected, and we begin to feel that perhaps all we need to know is how to pay the bills. Such is not the case at all, and this symposium discussed a number of concrete administrative procedures which, if put into effect, can readily raise the quality of medical care.

The first of these papers was by Dr. Dean A. Clark in which he fully demonstrated the ways in which group medical practice will raise the quality of medical care.

A second paper was one by Dr. Albert D. Kaiser in which he showed us how regionalization of hospitals can be made functional. Every state that has drawn up a hospital construction program has dotted lines on maps showing presumed relationships between regional and general and subsidiary hospitals. In most instances those are just dotted lines. Dr. Kaiser showed us how those lines can be built into functional and effective measures of raising the standards of performance in hospitals.

CHAIRMAN ATWATER: Our next speaker is Charles L. Senn, Engineer-Director of the City Health Department Bureau of Sanitation, Los Angeles, Calif.

MR. C. L. SENN: The theme of our engineering Section program is well stated in the title of a paper by Dr. Henry F. Vaughan: "A New Look in Food Sanitation." First of all we tried to decide what we as public health engineers, are including in our engineering program. We heard from Dr. Winslow that the old engineer who devoted himself only to the use of those two weapons, control of water and sewage, is like the old soldier standing on guard at the gates of the city when the enemy has disappeared. We came to the realization that our enemy is now among the people themselves in their homes, and so we have started to develop some sort of a program that might attack that fundamental point. We talked about the old sanitary inspector, and we feel his day has passed. The profession must be elevated to be one which is respected as are others in public health.

The highlight of our session was to have an engineer, Dr. Abel Wolman, honored by receiving the Sedgwick Memorial Award. We heard from him how when he, as the only sanitary engineering representative of the World Health Organization, arrived at Geneva he found that, while they had included malaria control in their program, they had entirely omitted the broad field of environmental sanitation. However, they were pursuaded of the monumental

importance of that field and it was finally included as one of six major objectives.

We are mindful of the criticism heaped upon health officers and sanitation administrators for faulty restaurants, deplorable housing conditions, hordes of rats, and many other conditions and nuisances, and we feel that it is time that we took stock and developed the ways and means of combating those things and evaluating the work actually accomplished in sanitation.

To do that requires team work from the health officer, the nurse, the industrial hygienist, all working together. One demonstration of team work was presented in our morning session on housing— and here is a field where it was pointed out that the nurse, the planner, the builder, and the health officer can get together to evaluate what we consider perhaps the most important foundation of environmental health. There is need for coördination of our work with industry, and we are glad there has been established at the University of Michigan a National Sanitation Foundation where health people, educators, public health researchers, and industry can get together and work out problems so that some day we shall no longer have 30,000 different codes based on the "armchair" philosopher's ideas, but have codes based upon scientific knowledge and judgment.

I cannot end with a more fitting comment than the final paragraph of Dr. Henry F. Vaughan's paper in which he says: "Wisdom and statesmanship are vital to orderly progress in sanitation. The men of sanitary science are outnumbered in our health departments only by public health nurses. The nurse has done much to evaluate the quality of her contribution to the health program. The man in public health sanitation should do no less. In this endeavor he requires the sympathy and understanding support of every public health administrator."

CHAIRMAN ATWATER: The next speaker needs scarcely any introduction to you, Dr. William P. Shepard. He has many capacities in the Association, but most important for the moment is his capacity as Chairman of the Committee on Professional Education, one of the four Standing Committees of the Association, and on that I shall ask him to make a brief report.

DR. W. P. SHEPARD: I can do little more than give you an index of the many activities of the Committee on Professional Education which culminated for the past year, at least, at this meeting, in the hope that you may find your special interest in this index and read the reports in full as they appear.

As some of you know, the two reports that we presented to the Governing Council were approved, namely, that on the Educational Qualifications of Community Health Educators, a revision of Professor Turner's subcommittee's report of three or four years ago; and the report on Educational Qualifications of Sanitarians. They were approved by the Governing Council with very minor editorial changes made at our suggestion.

I thought you would like to know that among the additional revisions of existing reports which may be forthcoming very shortly is the report on engineers, the one on vital statisticians now practically ready, by Dr. Fales and Dr. Reed; and the one on public health nurses.

I thought you might like to know that we are authorized at least to tackle two new fields for such results as we may be able to obtain. One is the possibility of drawing up educational qualifications for non-medical administrators. They are variously called "administrative assistants," and by other titles. They are the executive assistants, the administrative assistants

of health officers and hospital superintendents, and of many health department bureaus. We are also authorized to investigate the possibility of developing a report on the educational qualifications of dental hygienists, and to prepare a report on veterinarians in public health.

Just a word about field training centers. The report of Dr. Gaylord W. Anderson's subcommittee two years ago, approved last year by the Governing Council, has now been worked over into a little less ideal, but a little more applicable and practical form at the special request of the newly incorporated Specialty Board for Preventive Medicine and Public Health, of which I shall speak in a moment.

I am sure you have been impressed, as we have, by the studies and reports made by our Subcommittee on Salary Studies. You have had for the first time now from the columns of the *Journal* more or less current data concerning salary arrangements in official and voluntary health agencies.

I am sure you appreciate the Merit System Service's splendid exhibit this year, and their very interesting job of selling at the panel discussion which they held yesterday. I have never seen a better job done, and we are hoping it may call this splendid and unique service even more fully to the attention of personnel administrators and health officials.

The accreditation of schools of public health remains about as is, except that we are planning to increase the stringencies of the criteria somewhat, not in such a way as to discredit or hurt any of the existing schools, but rather as an additional hurdle, we might say, for proposed schools which aim to come up to the standards which the other schools have reached. This by no means shuts the door to the organization of new schools of public health, but it does make a university stop to think how they may meet certain minimum criteria before they suddenly decide to embark on such a course.

Our Subcommittee on Personnel Administration has done excellent work and has brought to our attention more fully than before the special arts and sciences and skills required in this field.

We have a subcommittee wrestling with an extremely difficult task under the chairmanship of Professor Turner, trying to devise some method of accrediting masters' degrees other than the master of public health degree in health education. It is a long, intricate subject that I have not time to go into now, but a progress report may be expected soon.

The Board for Preventive Medicine and Public Health has been incorporated, and consists of Dr. Walter L. Bierring as chairman, Dr. Felix J. Underwood as vice-chairman, Dr. Ernest L. Stebbins as secretary-treasurer, and six other members. Its incorporation was necessary before we made application to the American Medical Association's Council on Medical Education. Whether or not our plans for issuing specialty certificates in the field of public health and preventive medicine materialize, hinges upon a hearing in Chicago next February, and until that hearing is held and we have a decision from that Advisory Medical Council, we shall not be able to accept applications for specialty board examination.

We have never faced a more serious shortage of public health personnel, and while this question is beyond the scope of the Committee on Professional Education, it is of great importance to the American Public Health Association. We need more people and better people.

CHAIRMAN ATWATER: Our next speaker will be Miss Margaret S. Taylor, Director of the course in Public Health Nursing at the University of Minnesota.

MISS MARGARET TAYLOR: It seems

to this reporter that the Public Health Nursing Section, in planning the activities at this conference, put into practice some of the most vital premises on which public health nursing is built, namely, that public health nursing, to be effective, must have in its practitioners expert family health workers. They must know how to function as members of the public health team. Therefore, only one session was devoted exclusively to public health nursing, and we were very happy to participate with other Sections, feeling that in this complex society, if we are to meet the needs of the family and to function effectively as public health workers, it must be through coöperative action.

Therefore, most of these comments will highlight the individual session on public health nursing with special mention of the pertinent highlights in one or two others.

The one individual session was concentrated on Ways of Increasing Nurse Expertness "through time, through better guidance, through better orientation, and inservice education through analysis of the cost of these for better service." The university, it was pointed out, was in a very strategic position to help meet responsibilities in this regard. It can do this by having its educational programs flexible and individualized to meet the backgrounds and needs of the student and also the public (the needs of the community), correlating closely theory and practice. It was pointed out that such a program was only possible when based on a thorough knowledge of the advances in basic nursing education.

One attempt to reach the former end in universities is through increasing the learner's participation in his own learning, and it is felt that this is one important way to increase professional responsibility and competence.

There was also a very interesting discussion on how the nurse could be trained on the job, the length and the extent to which this could be done. A particular highlight of this discussion was that there were two main functions of this inservice education. One was to help the person gain skills through actual participation in functioning as a family health worker, with concern not only for the individual but also for families as a whole and of the health of the communities. Another was to learn how to function as a member of a public health team. To realize that it was essential to do the second in order to accomplish the first, use of supervision here entered the discussion. Emphasis was given through the meaningful, practical suggestion that only through actual seeing and experiencing guidance and counseling and supervision can we have dynamic vital staff nursing work.

Then because we are a very realistic group, the session ended with a discussion of need for and a method of cost analysis. There are discussion groups going on all over the country right now at which it is hoped not only nursing leaders from voluntary and public agencies will participate but also health officers and other persons concerned with operation of public health programs. So far, one health officer has attended.

Just one or two brief highlights on other Sections. At the joint meeting with the Health Officers on Personnel Management, again it was stressed that every new worker should have a planned orientation experience early in his employment. This orientation should be not for any one exclusive group, but should include all workers, not just all professional workers, but all workers in the agency, both professional and nonprofessional, so that all could put the philosophy into action. To learn together helps us to understand each other and then to function better as a team. This must be continuous in the service education program.

There were two other matters which were mentioned in this session. The problem of transportation, a very real problem and a most difficult one, to date is unsolved. If a large part of the health department budget is spent for public health nurses, this transportation bottleneck must be solved and it needs more realistic analysis. For this reason rural areas are losing new public health nurses.

It was emphasized also that there is a vital responsibility resting on the administrator to have all personnel work as a unit with excellent *esprit de corps*. We need to find a tangible way to put it in action so that we do not just say we will plan together, but we actually do it. The old story of allocation of responsibility with administrative backing is more necessary than ever in the complex public health work of today.

Many other discussions brought out the great importance of a good referral system between all agencies and persons, such as hospital and community agencies, so that every patient in the community would receive continuity of care to the limit of community resource and therefore have a chance to get well, prevent relapse, and stay well. This is an area long given intellectual approbation but with too little actual follow-through in action to date.

CHAIRMAN ATWATER: Now, a word from the chairman of the Committee on Salary Study. Dr. William R. Willard, Associate Professor of Public Health at Yale, who has made a special study of this subject during the last year or more during which time he has been chairman of the committee.

DR. W. R. WILLARD: We are all agreed, of course, that we would like more money, and you have had reference before to the urgent problem of recruitment and to the holding of personnel in the field now, which is closely tied up to the salary problem.

The first thing in trying to get salaries raised is to know something about what is now being paid. Consequently, efforts have been made to get information on a nation-wide basis as to the present picture on salaries. We have been very fortunate in that the U. S. Public Health Service, under the direction of Mr. Donald Simpson, Chief of the Personnel Administration Unit, has now completed three salary studies. The first one last year, on the salaries of state public health workers, was repeated again this year and is just off the press. A gap of about nine months between the two studies has shown, Mr. Simpson informs us, an overall increase of 6 or 7 per cent in salaries during that nine month period. Of course, one of our friends reminded us that we really did not get increases of 7 per cent, but we actually lost about 7 per cent when one compares these increases with the cost of living.

There have been some other studies on salaries that are significant, those made by the state laboratories, by the Vital Statistics Section of the A.P.H.A. and by the N.O.P.H.N. They are all useful in giving information as to the salary picture, and I feel sure if these studies continue as now planned, in the course of time—and not too much time—we will have useful trends which will be of increasing value in our efforts to secure adequate compensation.

I would like to point out that salaries are related closely to the qualifications of the individual, to his experience, to the responsibilities that he holds, and it is rather difficult, as matters now stand, to compare salaries in one area with those in another because of unknown factors involved. Jobs are called by different names, and they carry different responsibilities and require different backgrounds, and in an effort to get more adequate information for comparison as well as for many other purposes, the subcommittee is giving some consideration to formu-

lating a study project by which we hope to get more tangible and concrete information.

I think you are all aware of the Clearing House on Salary Information that the *Journal* has carried. I think that has been useful. I certainly hope that you will submit information that you pick up, your own experiences and anything at all that you feel would be helpful for other people to know about in improving the salary picture. Certainly, Mr. Frasher and other A.P.H.A. members have done a wonderful job with their clearing house information as well as in other phases of the salary problem.

Now, we come to the last point. You may recall that some months ago the Executive Board of the A.P.H.A. made a recommendation of minimum salaries for public health physicians. There is a considerable feeling that those recommendations should be modified, certainly extended to include other groups. The force of the A.P.H.A. standing behind certain recommendations might be helpful to you and to other workers in increasing salaries.

Consequently, the committee has begun a formulation of such recommendations and if they are approved later on by the Executive Board, possibly you will have another weapon to help you.

I rather hesitate to predict that you will have increases in salaries during the next year. I certainly hope you do. If you do, you might consider putting some of it in life memberships of the A.P.H.A.

CHAIRMAN ATWATER: Our next speaker is Dr. Winslow, Editor of the *American Journal of Public Health.*

DR. C.-E. A. WINSLOW: Dr. Atwater, I think that up to this time and excluding from consideration anything that may happen in the next five minutes, I should be prepared to say that the high point of the convention was the panel discussion this afternoon.

Certainly, one of the high points of this convention has been the remarkable efficiency with which it has been managed, involving a great deal of work on the part of Dr. Cauley and Dr. Wilinsky and the rest of their committee and of the staff of the Association.

Another is the quality of the papers. I have been to a good many of these conventions, but I doubt if we have had an annual meeting at which the quality of papers was as high as these have been.

A third factor, I think, of importance has been the note struck by centering so many of the discussions this week around the story of Lemuel Shattuck and giving us a background and a vision for all that we have been doing.

We have, however, not only sound roots in the past but promise of brilliant flowering for the future. I think one of the best things that have ever happened to us has been the creation of the Section on Medical Care.

I think perhaps, to me, however, the highest point of this convention is one that has been brought to our attention this afternoon but possibly not sufficiently emphasized. That is, the work of the Standing Committees.

You have heard Dr. Getting in regard to the Committee on Eligibility, and Dr. Francis on Research and Standards, and Dr. Kandle on Administrative Practice and Dr. Shepard on Professional Education, but I doubt very much if many of you have any conception of what this Association, and the cause of public health, owe to these Standing Committees. These are not sitting-down jobs. Just think where we should be in public health without the report on *Standard Methods for the Examination of Water and Sewage,* and the report on *Standard Methods for the Examination of Dairy Products,* and the report on *Diagnostic Procedures and*

Reagents. Where should we be without the procedure for evaluating health services and the studies on salaries and personnel adjustment? Where should we be without the formulation of standards for the various types of health workers and for the procedure of accrediting schools of public health under Dr. Shepard's leadership?

I have had the good fortune to attend two of these committee meetings, which sat until 1.00 a.m. in each case. I was filled with admiration and with a deep sense of responsibility to between 300 and 400 people who are working throughout the year on development of standard procedures, and of methods which are absolutely fundamental to everything we do. I think that is a service which is more or less unique in professional societies in its extent and in its quality.

Now, just a word about the *Journal.* You know what the *Journal* is worth better than I do, but I want to say, in closing, one word on what I think Dr. Atwater and Mrs. Jay and the rest of our colleagues working on the *Journal* feel to be its primary and major functions. That is, as I see it, to tie together the thirteen Sections of the Association and the four countries over which its membership of 11,500 is now diffused. In all other countries except the British Empire, so far as I am aware, public health is essentially a branch of medicine. Here we recognize the medical health officer as our leader, but we conceive of public health as a social movement which includes a dozen professions, medicine, engineering, nursing, dentistry, nursing education, nutrition, etc., bound together in a single common cause, brothers and sisters in arms against a common foe.

The A.P.H.A. is not a melting pot in which diverse elements are fused into a single substance. That would be a very dull and deadly thing. This Association operates in quite a different way. It is a polarization of diverse groups and their coördination in a single task, each profession contributing its special knowledge and special accomplishments toward a single goal.

The organization of a dozen groups of independent specialists into a team devoted to the well-being of mankind is the supreme attainment of the American Public Health Association, and it is the major ideal of the *Journal* to play its part in that great task.

CHAIRMAN ATWATER: Thank you Professor Winslow and each of the other participants who, in an extraordinary way, have precipitated in a few words the opinions that they have about this program.

Many of the program papers will appear in the *Journal* and some in other publications. We will make them available to you as rapidly as possible.

Dr. Charles F. Wilinsky, who is President-Elect, is taking office now at the close of this annual meeting, and I will ask Dr. Wilinsky if he will close this Second Special Session, which is the last meeting of the 76th Annual Meeting of the American Public Health Association.

DR. WILINSKY: Dr. Atwater, distinguished members of the panel, and my good friends, the membership of the American Public Health Association, we in Boston have waited a quarter of a century for the happenings of the past week. Our regret is that you gave us so long a breathing period in which to prepare for the 76th Annual Meeting, and we earnestly pray that you do not keep us waiting so long again.

It has been a source of great joy, of great satisfaction to each and every member of the Boston Committee, to make it possible for you to spend what we hope has been a pleasant five days, but we are particularly delighted with the reactions which we are receiving from all sources as to the content of the scientific program.

Those who know Bostonians, and we acknowledge our frailties and our shortcomings, agree at least that we have tried to be hospitable, and we had no fears but that everyone would do all he could to make you feel at home. We are mindful, of course, of the limitations of our meeting facilities. We were troubled about the headquarters at Mechanics Building for the meeting, and, therefore, we only hoped that difficulties would not be too great and would not impede the scientific deliberations and the opportunities for the exchange of ideas from which the men and women and children of America would profit.

May I express for the Local Committee, may I express for the people of Boston and of New England, our very deep gratitude for your kindness in coming here to be with us. We hope that your stay has been pleasant. You have enriched us by being here, and you have stimulated us to try to strengthen our health service on what we may term local levels because of the inspiration we have received from your presence among us.

God bless you all.

CHAIRMAN ATWATER: The meeting is adjourned.

A New Look at Sanitation*

HENRY F. VAUGHAN, Dr.P.H., F.A.P.H.A.

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IT may come as a surprise to some of you that one steeped in the traditions of public health administration and sanitary engineering should possess the audacity to suggest a new look at sanitation. The colorful and impressive milestones spread over the past several decades emphasize the noteworthy accomplishments in the eradication of typhoid and other enteric infections through the improvement and extension of safe water supplies and the installation of sewerage systems and disposal and treatment plants.

It is fitting on this occasion to remind ourselves of the early studies and constructive actions instituted by those pioneer men of sanitary science who labored in Massachusetts. State participation and achievements in the advancement of community health have established historical benchmarks since the organization in 1869 of the first among the state boards of health. The creation of a Division of Sanitary Engineering in 1886, the oldest of all, constituted one of the first functional activities of the State Board of Health. The story of the able engineers, Goodnough and Weston, as well as the great contributions to sanitary science by the giants of the Lawrence Experiment Station, are too well known in the history of public health to require enumeration. Mills, Hazen, Fuller, Sedgwick, Jordan, Clark are names which symbolize the early struggles of the sanitary engineer and chemist with the realities of a healthful environment. Outstanding investigations showed the dangers of polluted water, the means of treatment and purification, followed by the brilliant contributions in the biologic studies of sewage treatment and stream pollution. These were followed by Sedgwick's impressive revelation of the conditions of market milk in Boston and subsequent introduction of bacteriologic supervision and ultimately pasteurization.

One need but turn to the pictorial review of *Health Practice Indices*,* 1943–1946 (pages 54 and 56) to be impressed by the noteworthy results in providing a safe water supply and an approved sewerage system in the 254 areas in 33 states with cities and towns of more than 2,500 population. Approved water supplies reaching 98 per cent of the population are found in more than half the areas reporting. There are but 20 areas in which less than 85 per cent of the population have approved water supplies. There are but 64 among the 254 reporting areas in which less than 75 per cent of the population is served with approved sewerage systems. A second glance at the *Indices* (page 62) discloses the significant fact that in 50 per cent of the 258 reporting areas more than 95 per cent of the bottled milk offered for sale is pasteurized. There are but 46 areas in which less than 70 per cent of the

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milk is pasteurized. Progress has been made, advances are noted in each succeeding edition of the *Indices*, and the results are extremely gratifying.

Now let us turn our attention to another chart in *Health Practice Indices* (page 60) and discover the percentage of restaurants, lunch counters, and taverns with approved sanitation and food handling facilities. Although this chart can only reflect reported practice, it is significant that 43 of 276 reporting communities claimed perfection—what a comfort to the harassed public health officer and his director of food inspection! More important, 52 areas furnished no information, and of 224 for which data were available only 50 per cent reported that 75 per cent of the food establishments had approved sanitation and food handling facilities—truly a sorry picture. But we are told that health education is the slogan of the streamlined health program, and that the printed word together with the spoken word and visual methods has been substituted for the outmoded practice of rigorous law enforcement. And so, with eagerness, we turn to the chart (page 61) which silhouettes the percentage of food handlers reached by group instruction programs. This chart relates to instruction in methods of food handling beyond that possible during inspections. Of the 276 reporting communities, only 13 report that 90 per cent of the food handlers are reached by group instruction; in only 48 areas are 50 per cent reached. Ninety-six communities have no group health education program, and for 62 areas no data were available. Truly these charts disclose the unplowed fields of environmental sanitation. Like other public health endeavors, the field of sanitation with emphasis upon clean surroundings, does not remain static but constantly undergoes adjustment to the living habits of people and to developments in business and industry and to the educational, research and other tools at the disposal of the healthmen.

All of the five charts referred to above portray items of major significance in the evaluation of community health services. These are among the 13 key items (red-black items) of the *Evaluation Schedule*,* 7 of which deal with problems of environmental health. The 2 remaining sanitation items will be found under milk pasteurization plant equipment and industrial health. Existing problems of food sanitation become more acute, and new problems are generated by changing modes of life. Men of sanitary science find themselves confused for want of factual data on which to establish reasonable standards and practices. Together with men of business and industry, they find themselves befuddled by the kaleidoscopic array of codes and regulations which impose requirements too little understood or unjustified for lack of basic scientific information. Sanitation, therefore, presents an illustrious history, a chaotic present, and a challenging future.

Every health program must have a philosophic background inspired by reason and understanding. The modern health department endeavors to help people to help themselves in the improvement of personal health and, thus, the improvement of community health. Public health is primarily the summation of personal health. The whole can be no healthier than the part. There are some services of personal and public health which government through its health department can perform better, others that the individual can do better, still others which depend upon a joint undertaking. In the handwriting of Abraham Lincoln on a scrap of paper found in the collection made public in July, 1947, the great emancipator expressed his views of the relationship of

* Committee on Administrative Practice, American Public Health Association.

government to the people. "The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all or cannot do as well for themselves in their separate and individual capacities. In all that the people can do as well for themselves, the government ought not to interfere."

For the past twenty years the health department and medical profession in Detroit have engaged in a program to activate the latent resources of medical practitioners in providing an ever-increasing service in preventive medicine through the office of the family physician and specialist. The private offices of physicians and dentists have become health centers, from which flow protective treatments for smallpox, diphtheria, and whooping cough, examinations for early tuberculosis and other departures from physical and mental health, studies for the discovery of infectious syphilis and gonorrhea, programs for the improvement of maternal and child health, utilization of accepted procedures in the fight against cancer and heart disease. There have been no public immunization clinics for diphtheria in Detroit since 1928. Nevertheless, 53 per cent of the children born in that city are known to receive the protective treatment by the time they reach their first birthday, 70 per cent by the age of 2. Sixty thousand children come to school each fall fortified with the report of a complete examination at the hands of the family physician. Parents have actually been sold the idea that preventive medicine is a necessity, a purchasable commodity, as essential to the family as food, fuel, clothing, and shelter. Services are available within the financial capacity of the individual family.

More recently the able health commissioner and his staff have embarked upon a plan to build the interests and resources of the manufacturer and the distributor of food products into a unified and homogeneous program, to serve the public by promoting and maintaining a high level of cleanliness in all food handling establishments, including hotels, restaurants, lunch counters, taverns, and food manufacturing plants. Industry must bear a responsibility in the promotion of satisfactory sanitation control. Industry should use competent, trained personnel for their own sanitation programs, and such programs should be carried on with the coöperation of health departments. While the provision for supervisory and educational service remains an obligation of the trained sanitarian employed by the health department, such service can never adequately replace the contribution to food sanitation which can be made by a health-minded employee. The occasional visit to a food handling establishment is no substitute for continuous supervision by the employee and by management. Wherever practical, industry should be encouraged to employ a qualified individual for sanitary self-supervision. It has been done in the milk field. It is highly desirable that all food handling establishments, regardless of size, have some specific person responsible for the sanitary condition of the establishment. Health education at maximum effectiveness must be interwoven into the fabric of the food health service and must be understood and lived by those whose actions and behavior we aim to influence.

The needs for cleanliness have increased as the social, business, and living habits of people have changed. Problems of food distribution and service have evolved with the ever-varying patterns of production and consumption. What is the program of food sanitation for this country? Are there 30,000 different programs, each conforming to the pattern of the local health jurisdiction? Every man of sanitary science has faced these new problems and has had to make deci-

sions. There are periods of confusion and indecision. The business man is confounded by the multiplicity of codes and regulations and by overlapping jurisdictions.

The National Sanitation Foundation is an outgrowth of an interest developed on the one side by the public health official, on the other by business and industry. It affords a common meeting ground to discuss problems of mutual concern and to dispel the veil of uncertainty and ignorance which enshrouds the progress of each group. Only through understanding contact with the public health agencies, industry, and business, is it possible for the Foundation to contribute toward the solution of the most current and pressing problems. Research in sanitation must be as unending as sanitation itself. Each new development points the way to the discovery of newer and better agents and methods. In sponsoring research and health education the Foundation has been fortunate in having the aid of an able Consulting Board *

* The Consulting Board includes: Mark D. Hollis,‡ Asst. Surg. Gen., U.S.P.H.S., Washington, Chr.; Herman G. Baity,‡ North Carolina University, Chapel Hill; Earnest Boyce, University of Michigan, Ann Arbor; Joel I. Connolly, Board of Health, Chicago; Lewis Dodson,† City Health Department, Denver; Ernest G. Eggert, Georgia Department of Public Health, Atlanta; V. M. Ehlers, Texas Department of Health; Francis B. Elder, American Public Health Association, New York; A. H. Fletcher, New York City Health Department; A. W. Fuchs,* U.S.P.H.S., Washington; W. A. Hardenbergh, Public Works Magazine, New York; W. R. Hardy, City Health Department, Fort Worth; John M. Hepler, Michigan Dept. of Health, Lansing; Ira V. Hiscock,† Yale University, New Haven; J. K. Hoskins, Former Asst. Surg. Gen., U.S.P.H.S., Washington; C. W. Klassen,‡ Vice Chr., Illinois Dept. of Health, Springfield; W. Scott Johnson, Missouri Dept. of Health, Jefferson City; F. A. Korff, City Health Dept., Baltimore; Emil C. Jensen, Washington Dept. of Health, Seattle; W. L. Mallmann,* Michigan State College, Lansing; Walter S. Mangold,‡ University of California, Berkeley; Margaret Mead,† American Museum of Natural History, New York; H. E. Miller, Secy., University of Michigan, Ann Arbor; L. J. Peterson, Idaho Dept. of Health, Boise; M. Allen Pond, U.S.P.H.S., Washington; B. A. Poole, Indiana Dept. of Health, Indianapolis; Charles L. Senn, City Health Department, Los Angeles; W. D. Tiedeman,* New York Department of Health, Albany; Jerome Trichter, New York City Health Department; H. A. Whittaker,‡ University of Minnesota, Minneapolis.

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and Committee on Research and Education. The Board was impressed by the fact that there had been little basic work done to determine some of the sanitary aspects of dishwashing and this became its first study.[1-4] Codes are found throughout the country requiring 2 to 3 minutes' exposure to water at 170° to 180° F. for all dish sanitization irrespective as to whether the work is done by hand or machine. Mallmann and his associates, as a result of studies supported in part by the Foundation, recommend a rinse period of 10 seconds at 170° F. for single tank dishwashing machines. They recommend a temperature of wash water between 130° and 140° F. with a time interval of not less than 30 seconds; the flow pressure of water should be not less than 20 lbs. per sq. in. They have developed a Surface Analyzer with test plates which measures washing efficiency in soil units. These findings and recommendations have been adapted to routine field work. Other studies aided in part by the Foundation include methods of measuring end results in utensil sanitization,[5, 6] methods for testing various properties of dishwashing compounds,[7] factors affecting the properties of quaternary ammonium compounds as sanitizers,[8, 9] methods for testing the efficiency of high temperature-short time milk pasteurization.[10] Analyses have been made of legislative requirements and sanitary practices indulged in by health departments.

Media are being developed for the dissemination and acceptance of recommendations emanating from research and educational studies so that the findings may be more widely known to both public health and industrial groups throughout the country. Noteworthy is the holding of the first National Sanitation Clinic[11] at Ann Arbor in June, 1948, which brought together for four days 400 authorities from industry and public health. The clinic dealt with twelve major subjects involving food distribu-

tion and service including (1) sanitation education, (2) sanitation supervision and administration, (3) eating and drinking ordinances and codes, (4) dishwashing, (5) detergents and sanitizers, (6) sanitary requirements and installation of food service equipment, (7) soda fountain and luncheonette equipment construction and installation, (8) food handlers' training program, (9) vending machines, (10) bars and taverns, (11) food protection, and (12) rodent and insect control. Out of the clinic came an increased respect of public health for industry and of industry for public health. Both were drawn together by mutual problems and mutual objectives. There was common and vigorous accord on the need for more effort by national, state, and local agencies to improve sanitation.

There should be a national sanitation program sponsored and planned by the U. S. Public Health Service, in coöperation with state and local health authorities. Industry as well as the public is entitled to know what the program of sanitation is for the United States. Generous appropriations have been made by Congress to support plans for the control of venereal diseases and tuberculosis, for cancer services, heart disease, and dental health. Funds are available for the elimination of stream pollution. However, the basic problem of completing the coverage of our nation with full-time local health units served by trained personnel and emphasizing the needs in public health nursing and sanitation, remains ahead of us. The constructive and positive aspects of health education and food cleanliness must be woven into the fabric of the local health department and made a prime objective of all food service industries. In no other manner can we expect to realize and enjoy the fruits of research and education in this field.

A national sanitation program may well embrace the following seven points:

1. *Trained personnel*—Provision for adequately trained and experienced personnel in the field of public health is an absolute necessity to gain proper respect for the sanitation movement. Healthmen have been criticised in the past, and will be criticised, as long as the liaison officer with industry remains the politically-appointed inspector in the local health department. The American Public Health Association through the Committee on Professional Education should define the terms of sanitary science, the duties and responsibilities of the public health engineer, the sanitarian, and the sanitary inspector. Qualifications together with acceptable nomenclature are essential to uniform practice. Industry and the public are entitled to know "What is a Sanitarian?" Is he a street cleaner who pushes a two wheeled cart, or is he a college graduate prepared to direct intelligently the health programs of industry and the health department? Should the men of sanitary science be trained in our great universities and schools of public health, concurrently with other personnel to be employed by full-time health departments? Possibly the leaders and supervisors should have an academic background in biology and public health, while the sanitary inspector with lesser responsibility may receive inservice and orientation training! At least there is no place in the picture for unqualified personnel; and public funds should not be available for the employment of political hacks in the name of public health. To employ such individuals engenders distrust and contempt both on the part of the public and men of industry.

2. *Research in sanitation*—A national program can and should be developed as a potent tool in the movement for better sanitation. There is a changing cycle in environmental health which has brought forth increased sanitation problems. Accordingly, appropriate research in the hands of qualified men in sani-

tary science should be promoted and supported in the field of food sanitation, and media should be developed for the dissemination and acceptance of such research by the public health and industrial groups.

3. *Sanitation education*—Education concerning sanitation is essential to help in measures for the improvement of health and the satisfactions of living as well as for the prevention of communicable diseases. Information may be made available through various media including (1) the spoken word, (group meetings, person-to-person, radio, television), (2) printed matter (newspapers, magazines, bulletins, newsletters, posters, car and bus cards, pamphlets, portfolio presentations for speakers, comics, cartoons), and (3) visual aids (photographs, films and slides, motion pictures, exhibits and displays). The channels of communication are innumerable. A national sanitation program would provide a clearing house for ideas, methods, and media, both old and new, for use in the development of sanitation education. There is need for a sanitation slogan, likewise a symbol, to emphasize the positive aspect of cleanliness. Possibly in this manner sanitation can be glamorized and removed from the dismal abyss of street cleaning and rat destruction.

4. *National sanitation clinic*—The pattern of a national sanitation clinic has already been established. However, this can very readily be altered and improved upon. Periodically, the major subjects of food sanitation should be reviewed by authorities from industry and public health. The questions which need answers fall into three classes: (1) those that can be answered by an analysis of research material available, (2) those that cannot be answered except by the process of best judgment based upon existing experience, and (3) those requiring additional research and study. The holding of regional clinics would do much to develop the scope and influence of such conferences by focusing the attention of industrial and public health groups upon the problems of sanitation.

5. *Testing laboratory*—The provision of an adequate testing laboratory is fundamental to research and the orderly progress of health education. The need has long been felt by both industry and public health people. Many of the current problems concerning new equipment and new products might have been settled long ago.

6. *Publication*—True, there are several journals in the field of sanitation at the present time but none successfully covers the field of environmental health. From industry, comes the demand for a single authoritative journal, the publication of which will obviate the need of keeping track of a number of journals in the health field which but occasionally contain contributions of interest to those handling food services and equipment.

7. *Textbooks*—With a view to sanitary practices, an analysis should be made of the various textbooks used in schools, and pamphlets and other material prepared for public consumption. There should be a substantial basis for public educational programs by schools, health departments, and other agencies. Every individual during the early years of life should have some appreciation of the whole subject of sanitation. Some young people may even choose to enter the profession of sanitary science and help fill the voids in the health department ranks. The task of industry is materially eased by the employment of personnel possessed of an appreciation of a subject which is materially a part of the job for which the individual is employed.

Wisdom and statesmanship are vital to orderly progress in sanitation. The men of sanitary science are outnumbered in our health departments only by the public health nurses. The nurse has done much to elevate the quality of her contribution to the health program; the

man of public health sanitation should do no less. In this endeavor he requires the sympathetic and understanding support of every public health administrator.

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International Adoption of Principles of Morbidity and Mortality Classification*

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ADOPTION by the First World Health Assembly at Geneva on July 24, 1948, of Regulations No. 1 carried to completion one of the tasks which were given to the Interim Commission of the World Health Organization by the International Health Conference held in New York City in June and July, 1946.[1] These regulations, which are to be known as "Nomenclature Regulations—1948," provide for the formal adoption, internationally, of the Sixth Revision of the *International Lists of Diseases and Causes of Death* as well as uniform procedures in the compilation and publication of morbidity and mortality statistics. In conformance with the constitution of the World Health Organization, the regulations will come into force for each member nation one year from date of adoption except for those nations which formally record rejection or reservations within that period.

For nearly fifty years the *International List of Causes of Death* has been used by an increasing number of national and other agencies in the compilation of statistics of causes of death. The Sixth Decennial Revision Conference, following past tradition, met in Paris from April 26 to 30, 1948, at the invitation of the French Government. The Conference marked the beginning of a new era in international vital and health statistics. It adopted a single comprehensive list of diseases, injuries and causes of death for use in the compilation of statistics of both morbidity and mortality. In addition, it recommended the adoption of a far-reaching program of international coöperation in vital and health statistics. Its recommendations were directed to national governments and to the World Health Assembly.

It will be recalled that the Fifth International Conference for the Revision of the *International List of Causes of Death*, held in Paris in October, 1938, requested the United States to continue its investigations of the "joint-cause-of-death" problem during the decade 1938–1948 on a slightly wider basis, in cooperation with other countries and organizations. In accordance with this resolution, the Secretary of State of the United States appointed the U. S. Committee on Joint Causes of Death in 1945. Representatives of Canada, Great Britain, and the Health Section of the League of Nations were included in its organization. The work and recommendations of this committee laid the basis for the sixth decennial revision and the adoption of international rules for clas-

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sification and tabulation. At the last meeting of the A.P.H.A., the U. S. Committee was awarded a Lasker Group Award for its accomplishments.

The adoption of the *International List of Causes of Death* has not led to complete international comparability of cause-of-death statistics. Aside from the questions resulting from differences in medical practice in different countries, the principal obstacle to international comparability has been the differences in procedures for classifying the main cause of death when two or more conditions were stated on the medical certificate of death. The problem was recognized by Farr from the very beginning of modern vital statistics, and his early letters to the Registrar General of England and Wales indicated the rules of selection that should be followed in such instances. At the First Revision Conference in 1900, Bertillon emphasized again the need for uniform rules for selection of the primary cause of death and proposed certain rules for international use. Similar rules were formulated by registration offices of other countries, including The Registrar-General's Office of England and Wales, although England did not adopt the *International List* until 1911.

In the United States, the Division of Vital Statistics of the Bureau of the Census appreciated that the uniform application of the rules required the recording of all decisions in order to establish precedents for similar combinations in the future. The division realized all along that the ultimate solution of the problem depended upon a painstaking comparison and study of individual cases, with thorough investigation of actual pathological relations. Neither the titles nor subtitles could be treated as units, but individual terms must be considered, together with the reporting habits of the physicians. These were the guiding principles by which the Division of Vital Statistics under Wilbur and Van Buren compiled the *First Index of Joint Causes of Death,* published in 1914, from the accumulated experience of our own national vital statistics. Subsequent editions have been issued which adapted the *Manual of Joint Causes of Death* to the various revisions of the *International List.* These manuals greatly aided the uniform and consistent classification of causes of death in this country, and their usefulness was recognized by many other registration offices.

A second obstacle to international comparability of cause of death statistics has been the lack of a uniform medical certificate. Various wordings for such a certificate have been tried and discarded over the years. The Committee of Expert Statisticians of the Health Section of the League of Nations studied the matter extensively and made specific recommendations in a report issued in 1925. The report recommended that instead of asking for the primary and contributory causes of death in that order, which had been the usual practice up to that time, the medical certificate of death should call first for the immediate cause of death (i.e., the disease, injury, or complication which caused death), and then the antecedent morbid conditions, if any, that gave rise to the immediate cause of death. Great Britain, whose representatives had been among the leaders in the deliberations of this committee, adopted in 1927 a medical certificate of death which followed closely these recommendations. The Vital Statistics Section of the Canadian Public Health Association also made careful studies of medical certification in the early 1930's and adopted in 1935 a medical certificate quite similar to the English certificate. The 1939 revision of the Standard Certificate of Death in the United States incorporated the essential elements of the League of Nations' recommendations; namely, asking first for the imme-

diate cause of death and then the antecedent causes, if any. However, the limited space available for medical certification on the U. S. Standard Certificate of Death precluded the inclusion of instructions given on the English and Canadian certificates.

All of these attempts to secure an adequate medical certificate of death have been aimed toward a better understanding, upon the part of certifying physicians, of the kind of information the vital statistician must have at his disposal in order to produce the most meaningful statistics of causes of death. From the time of Farr, our statistics of causes of death have been compiled on the basis of the disease or event (in case of deaths from external causes) that initiated the train of events leading to death. The rules of Bertillon were drawn up on this basis. Both the U. S. *Manual of Joint Causes of Death* and the English method followed the general rules formulated by Bertillon. However, the method of application of the rules in the United States and in England and Wales differed. In the United States, reliance was placed mainly on the joint-cause relationships given in the *Manual of Joint Causes of Death*, while the English based selection on detailed rules formulated on the basis of Bertillon's rules. Beginning in 1940, the selection of the main cause of death in England and Wales has been according to the doctor's entries on the medical certificate with the aid of a minimum number of rules for handling special cases.

The foregoing is a brief background of the work on joint causes of death up to the time the U. S. Committee on Joint Causes of Death undertook to study the problem. In their study, 10,048 microfilm copies of death certificates for Maryland and upstate New York were coded according to (1) the joint cause procedure as now followed in the United States, (2) a modification of this procedure which omitted from the primary cause assignment those terms reported as "other conditions" contributing to the death but not related to the immediate cause, and (3) the method used in England and Wales.

The study indicated that assignment of the main cause of death for this sample of death certificates agreed in 89 per cent of the individual cases whether assignment was made according to the usual United States procedure or by the English method. However, because of compensating assignments, the tabulated data showed an agreement of 94 per cent.

When the results of the English method were compared with those obtained by the modified United States joint-cause procedure, it was found that 95 per cent of the individual assignments of cause of death were in agreement. Compensating assignments increased the comparability to 97 per cent.

These results indicated that the arbitrary selection of the primary cause of death resulting from the use of the *Manual of Joint Causes of Death* as a classification tool was not primarily responsible for the apparent discrepancy between cause-of-death assignments and clinical interpretation of causes of death. The main source of difficulty appeared to be the American practice of considering every cause stated, regardless of its order and position on the medical certificate. It should be recalled that one of the objectives of the 1939 revision of the Standard Death Certificate was to separate the diseases and conditions directly leading to death from other contributing conditions of importance but not related to the disease responsible for death. This separation, however, had not been taken into account in our coding procedures.

Prior to the study, however, the U. S. Committee on Joint Causes of Death had recommended that the *International List of Causes of Death* be expanded so that a single statistical classification of diseases, injuries and causes of death

could be used in the tabulation of both morbidity and mortality data. The committee, recognizing both the physical impossibility and the lack of necessary experience for revising the *Manual of Joint Causes of Death* to accommodate the expanded base of the proposed classification, recommended against such a revision.

Further, the committee was of the opinion that the ultimate solution of the joint-cause problem in terms of more accurate and useful statistics could be achieved in other ways. Therefore, the U. S. Committee on Joint Causes of Death recommended to the Expert Committee of the World Health Organization (Interim Commission) and the Sixth Decennial Revision Conference that three fundamental steps be taken. These were: (1) the adoption of a uniform medical certificate of cause of death designed to elicit the necessary medical information, (2) the formulation of rules for the selection of the underlying cause of death, and (3) the institution of a program for medical students and practitioners to promote a better understanding of medical certification.

These recommendations were accepted in substance by both bodies. Regulations No. 1 adopted by the World Health Assembly provides for their acceptance internationally. For the first time, therefore, we have international acceptance of a uniform medical certificate of cause of death and uniform rules for the selection of the main cause of death. The international rules are, necessarily general in nature to the extent that they have applicability to all countries. The adaptation of these rules to take care of local peculiarities in reporting has been left to individual countries which will incorporate supplementary rules in coding manuals.

It is of particular interest to note that the international rules are not exactly new. They are largely but restatements of some of the general rules proposed by Bertillon in 1900. More particularly, they represent restatements of the special rules which the Registrar General of England and Wales has found necessary in the coding of causes of death. As we have seen from the study of the U. S. Committee on Joint Causes of Death, the application of the U. S. *Manual of Joint Causes of Death* and British rules to a sample of death certificates filed in Maryland and upper New York State show a surprisingly close correspondence. This close adherence is undoubtedly because they are both based on the same general principles.

The World Health Organization is publishing the new classification in a Manual which will consist of two volumes. The Manual will appear in English, French, and Spanish editions. Volume I will contain in addition to the Introduction, List of Categories and Tabular List of Inclusions, a section on medical certification and rules for classification and special lists for tabulation purposes. Volume II forms a comprehensive alphabetical index of diagnoses and conditions. For the first time, the English-speaking countries of the world will use the same manual, which will be a further aid to comparability of international statistics.

Implicit in the adoption of the new international joint cause procedures is the use of the international form of medical certificate. The new Standard Certificate of Death to be introduced next year in this country provides for the inclusion of this form of medical certification. The primary responsibility rests with the certifying physician to decide which morbid condition led directly to death, and to state the antecedent conditions, if any, which gave rise to this cause with the underlying cause stated last. The general rule for classification is to select as the cause to be tabulated, the underlying cause

which was the starting point in the sequence of events leading up to the direct cause of death. Exceptions to this general rule are incorporated in the *International Statistical Classification of Diseases, Injuries and Causes of Death* and in a coding instruction manual which the National Office of Vital Statistics will issue to amplify the international rules for use in this country. The primary purpose of such rules is to obtain consistency in assignments when required medical information is omitted or entries are inverted.

In adopting the new coding procedures, coding clerks should become thoroughly familiar with the Tabular List of Inclusions as well as the new rules. However, coders will find the procedure more interesting and satisfying since the logic of the assignment is seen more clearly than was frequently the case in coding by means of the *Manual of Joint Causes of Death*. In order to assist the vital statistics offices in making the transition between the old and new classification procedures, the National Office of Vital Statistics has, with the coöperation of the state bureaus of vital statistics, sponsored an orientation course on the new procedures. During the months of September and October, 3 day sessions of instruction were held in Washington, D. C., New York City, New Orleans, Chicago, Denver, and San Francisco, to which the state bureaus of vital statistics invited coders from various agencies. A more intensive training course will be offered during the coming year to states requesting such a service from the National Office of Vital Statistics if circumstances permit.

Another means of obtaining greater uniformity in coding practices is afforded by the comparison of cause-of-death assignments as made by the state bureaus of vital statistics and the National Office of Vital Statistics. These comparisons will be made, as in the past, on a sample of death certificates periodically for states requesting them, and differences in cause-of-death assignments will be reconciled. The purpose of these comparisons, however, is not to correct statistics but to point out errors in the application of the various rules.

Every revision of the international list or any change in coding procedures in the past has resulted in a break in the comparability of mortality trends. For many conditions, it is not expected that the problem of comparability with past experience would be any more serious than in past revision years. For certain causes of death, such as diabetes mellitus, where the change will be considerable, the statistics will provide more meaningful data by eliminating from primary mortality tabulations diabetes reported as a contributory cause of death. To assist in the evaluation of the effects of all such changes, the causes of death for 1949 are to be coded and tabulated by the National Office of Vital Statistics according to the old and new joint-cause procedures.

The new international classification of diseases, injuries and causes of death and the revised joint-cause procedure will open up great possibilities for improving the quality of cause-of-death statistics. However, there are a number of problems to overcome before its full possibilities can be realized. The most serious of these is securing improvement in the quality of certification. A step in this direction has been taken by including in the new standard certificate of death the international form of medical certification.

A great deal of time and effort will need to be expended during the coming year on these problems. The statistician should secure the coöperation of health officers in the task of promoting a better understanding by the medical practitioner of the medical certificate form. In the beginning, registration offices will have to do considerable querying in

order to be assured that the certifying physician has made entries in the correct order. The rewards of such efforts, however, will be great in improving the quality and the meaningfulness of our cause-of-death statistics. In addition, coding will be simplified when the entries on the certificates are made in the correct order. Fewer problems in the selection of the underlying causes of death will arise in these instances.

The expansion of the *International List* to cover causes of illness as well as causes of death opens up large opportunities for full utilization of the growing volume of morbidity data. Country after country signified their interest in a classification suitable for morbidity as well as mortality statistics. We must recognize, however, that the procedures for classification of mortality data have been based on years of experience. The handling of statistics of illness is relatively new, and, furthermore, the problems involved in their statistical classification are not so clear-cut.

Morbidity is far less definite than mortality. The occurrence of death is a discrete event, and the number of such events can be counted. An illness, on the other hand, varies from a minor deviation from normal health to the bed or institutional cases of chronic disease. For this reason, a cause of illness is not so easily defined as a cause of death. Furthermore, in many studies on morbidity, it is far more useful to study all the diagnoses involved rather than assign the illness to a single condition.

The Expert Committee of WHO recognized that the time had not arrived for laying down specific coding procedures in the handling of morbidity data. Instead, it called attention in its discussions of morbidity coding to the need for further studies of the problem. In the introduction to the *Code for the Tabulation of Morbidity Statistics* issued by the Medical Research Council of Great Britain there are suggested rules for the selection of the principal and contributory diagnoses, and in the introduction of the *Manual for the Coding of Causes of Illness* issued by the U. S. Public Health Service there is a further discussion of this problem with particular attention paid to the coding of multiple diagnoses. The next ten years should show a considerable progress in the development of procedures for the handling of morbidity data. In spite of the growing usefulness of morbidity statistics, mortality statistics remain the only body of disease statistics available universally for the study of many health conditions. Efforts to secure more accurate and reliable cause-of-death statistics will continue to be an important function of registration offices.

REFERENCE

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Plans for United States Coöperation with the World Health Organization in the International Influenza Study Program*

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DURING the 4th International Congress for Microbiology held in Copenhagen in July, 1947, it was proposed that a program of international collaboration be initiated in the field of influenza. The overall purpose of the proposal was to set up the machinery necessary to protect the world population in so far as feasible against recurrence of another disastrous pandemic of influenza such as was last experienced in 1918. In September, 1947, the Interim Commission of the World Health Organization recommended that an International Influenza Center be established under Dr. C. H. Andrewes at the National Institute for Medical Research in London to study and analyze newly isolated strains of influenza virus, and advised that all nations set up organizations to collaborate with that Center. Subsequently, on December 4, 1947, Dr. Andrews addressed a letter to the Surgeon General of the Public Health Service, specifically inviting the participation of the United States in the coöperative program.

The thought behind the original recommendation of the Interim Commission was that, if the suggested machinery for promptly isolating new strains of the virus from outbreaks of influenza were to work smoothly, a vaccine effective against the particular strain of virus which is potentially able to cause a pandemic of influenza would be available for use before the disease itself had spread extensively. For example, under ideal circumstances, if such a strain were first isolated outside the continental United States, it could be incorporated in commercial vaccine and be available for protection of the population of this country before the disease had reached these shores. Or, even, if the strain were isolated in one corner of this country, it could be made available in commercial vaccine before the disease had extended over the entire nation. Admittedly, these examples ignore existing practical limitations in vaccine production which cannot easily, if at all, be resolved. Nevertheless, the peril to the nation and to the entire world of a recurrence of a pandemic of influenza is so great that almost any steps would be justified which, in the minds of authorities, might avert such a disaster.

Dr. Andrewes' letter inviting the United States to participate in the World Health Organization influenza study program was referred by the

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

Surgeon General of the Public Health Service to Dr. R. E. Dyer, Director of the National Institutes of Health, who, in turn, passed it on for advice to the Virus and Rickettsial Study Section. That body, which includes several of the nation's leading authorities on influenza, formulated at its meeting on January 26, 1948, the following recommendations which were later transmitted by Dr. Dyer to the Surgeon General:

> The Virus and Rickettsial Study Section is in hearty agreement with the concept of the World Health Organization to obtain information as to world-wide occurrence of influenza and the properties of strains of the viruses.
>
> The organizations in the United States, such as the Influenza Commission of the Army Epidemiological Board, which have, since 1941, maintained a continuous interest in these problems, have established listening posts, laboratories, and a Strain Study Center which have already demonstrated the effectiveness of such a program.
>
> It can be anticipated that information and materials obtained by all these organizations will be made available to the World Health Organization.
>
> It is recommended that the Strain Study Center operated at present at Cornell University College of Medicine under the direction of Dr. T. P. Magill be maintained, adequately supported, and be designated the National Strain Study Center for the United States of America.
>
> It is also recommended that the facilities of the U. S. Public Health Service be utilized to the fullest extent in this connection and, if necessary, be expanded and coördinated with other existing organizations.
>
> It is suggested that a committee designated by the Surgeons General of the Army, Navy, Public Health Service, and Air Force, be empowered to implement the program.

Following the suggestion of the Study Section, a meeting attended by representatives of the Surgeons General of the Army, Navy, Air Force, and Public Health Service was held in Washington on April 23, 1948, to discuss the implementation of the influenza program within the United States. At this meeting, the recommendations of the Virus and Rickettsial Study Section were adopted essentially in their entirety. It was decided to build the program in the United States largely around the National Strain Study Center, and to utilize the existing facilities for investigating influenza, especially those under the Army Commission on Influenza. It was also recommended that an Influenza Information Center be established in the Division of Research Grants and Fellowships at the National Institutes of Health to administer the World Health Organization influenza program in this country and to serve as the liaison office between the International Influenza Center in London and the coöperating laboratories in the United States. Such an Influenza Information Center has since been set up and is now participating in the international program.

FUNCTIONS OF THE INFLUENZA INFORMATION CENTER

As it has been developed, the Influenza Information Center is to have three principal functions: (1) to serve as a clearing house in the United States for the receipt and dissemination of information regarding influenza and the virus responsible for the disease; (2) to coördinate the work of the diagnostic "watch stations" needed in the United States for the laboratory identification of cases of influenza and the isolation of new strains of the influenza virus; and (3) to aid in arranging conferences looking toward possible improvement of influenza vaccine by the incorporation of newly isolated strains of virus.

The most urgent and immediate responsibilities of the Information Center are related to the prompt reporting of outbreaks of the disease and the establishment of an appropriate series of laboratories which could be called on to supply laboratory service essential to the serological diagnosis of cases of influenza and for the isolation of the

virus responsible for these cases. These responsibilities will be described in brief detail.

REPORTING OF OUTBREAKS

The reporting of outbreaks of influenza should in large part be taken care of through the existing reporting channels of the Division of Public Health Methods of the U. S. Public Health Service. However, the explosive character of most influenza epidemics and their exceedingly rapid spread over extensive areas present admittedly serious obstacles which only time and experience can fully resolve. Furthermore, it is unfortunately true that many cases of influenza are not reported by local physicians or by health officers until outbreaks have already attained com paratively serious proportions. The laboratory identification of most cases of suspected influenza is seldom obtained, and reported outbreaks of the disease cannot in most instances be authoritatively described as caused by influenza virus. One of the major responsibilities of the Influenza Information Center, then, is the encouragement of physicians and local health officers to establish definitively the etiology of cases of respiratory infection suspected to be caused by the influenza virus. Steps are being taken to focus the attention of medical practitioners on the importance of influenza and the need for reporting outbreaks of the disease, through motion pictures, exhibits, and announcements concerning the influenza program.

On receipt of information by the Information Center that a significant outbreak of respiratory disease suspected to be influenza has occurred in a given community, the Center will alert laboratories in the region, asking them to carry out serological tests on patients for the presence of antibody against one of the known strains of influenza virus. Likewise, the laboratories will be asked to try to isolate the virus from these patients. Once the virus, if isolated, is identified, reports will be broadcast as to the nature of the etiological agent responsible for the disease.

DIAGNOSTIC SERVICE

In an effort to meet at once the potential need for essentially nationwide diagnostic laboratory facilities, it has been recommended that a series of strategically located laboratories in the United States be formally invited to participate in the program, these laboratories to be called on for service in their immediate localities as soon as an outbreak of disease suspected to be influenza is recognized. It is not considered reasonable to set up *new* laboratories exclusively for this diagnostic function. Instead, it is hoped that existing laboratories which are already equipped for general diagnostic purposes, or else existing laboratories which are presently engaged in research on influenza, can serve in the program, either on their own initiative or when requested to do so by the Information Center in the event of an outbreak of suspected influenza in their locality.

It is anticipated that, because of the simplicity of the technics involved (principally the agglutination-inhibition test), many laboratories could quite easily prepare to perform the serological tests upon patients with suspected influenza. On the other hand, only few stations could wisely attempt, in addition, the isolation of strains of the virus from fresh cases. Accordingly, it has been proposed that two levels of diagnostic stations be set up: No. 1 stations, for serological testing alone; and No. 2 stations, for serological testing *and isolation of virus*.

When a No. 1 station reports to the Information Center that it has noted elevated titers of influenza antibody for any outbreak of respiratory disease, the nearest No. 2 station will be asked to

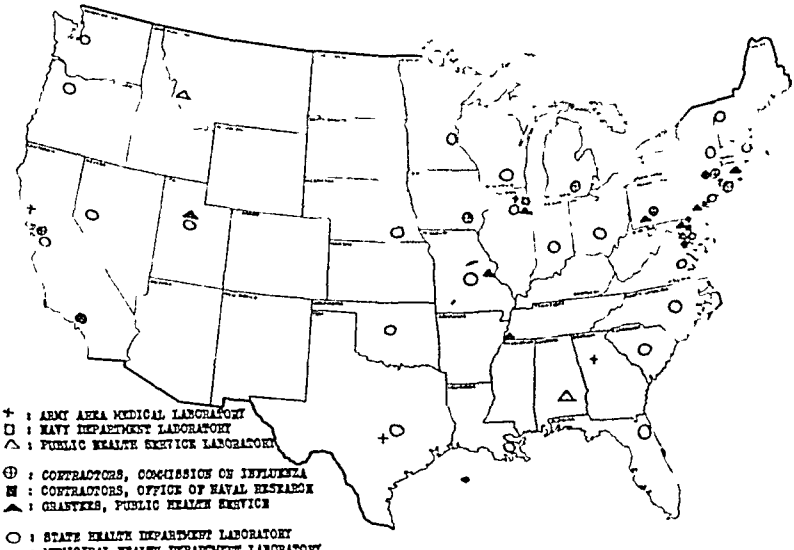


FIGURE 1. LABORATORIES IN THE UNITED STATES PARTICIPATING IN THE WORLD HEALTH ORGANIZATION INFLUENZA STUDY PROGRAM, UNDER THE INFLUENZA INFORMATION CENTER AT THE NATIONAL INSTITUTES OF HEALTH.

send into the affected area a team of investigators experienced in the technics of isolating the virus. The No. 2 stations would, presumably, be able to carry on the complete service, including the attempted isolation of the virus, whenever an outbreak of influenza or respiratory disease simulating influenza occurs in their own community. Once a strain of virus has been isolated, it would be sent at once for a complete antigenic analysis to the National Influenza Strain Study Center, which is under the direction of Dr. T. P. Magill, Long Island College of Medicine, Brooklyn, N. Y.

PARTICIPATING DIAGNOSTIC LABORATORIES

It is hoped that all diagnostic laboratories in the nation will, as opportunity permits, use their facilities to assist the influenza program. However, it has been deemed wise that a more formal invitation to participate in the program be extended to certain laboratories which are believed to be especially qualified because of their strategic location or because of their personnel. The laboratories which are to be formally invited to participate can conveniently be placed in three groups:

1 Those operated by one of the Services of the federal government

2. Those operated by local or state health departments

3. Those engaged in influenza research through support from the federal government

It is believed that the costs of participation in the program, so far as the laboratories of the first two of the groups just mentioned are concerned, could be met through the laboratories' own budgets, since the services involved would be part of the regular responsibility of these laboratories to the local, state, or federal governments. It is proposed that the laboratories of the third group would participate primarily on an emergency basis, and that, in an emergency, they would be willing temporarily to suspend their usual research activities, if necessary, to take on the diagnostic function. The funds originally supplied to these laboratories by the federal government for research purposes could, by administrative authorization, then be used to pay the costs of

participating in the influenza program. A list of the laboratories which have been formally invited by the Influenza Information Center to participate in the influenza program and which have accepted this invitation follows. The location of these laboratories is also indicated in Figure 1.

Laboratories Which Are Participating in the Influenza Study Program

Laboratories Operated by the Federal Government:

Department of the Army:

First Army Area Medical Laboratory, 90 Church St., New York, N. Y.
Second Army Area Medical Laboratory, Ft. G. G. Meade, Maryland
Third Army Area Medical Laboratory, Ft. McPherson, Georgia
* Fourth Army Area Medical Laboratory, Ft. Sam Houston, Texas
Fifth Army Area Medical Laboratory, Ft. Sheridan, Illinois
* Sixth Army Area Medical Laboratory, Ft. Baker, California

* *Department of the Navy:*

Naval Medical Research Unit No. 4, Great Lakes, Illinois

* *Public Health Service:*

Division of Infectious Diseases, National Institutes of Health, Bethesda, Maryland
Virus Laboratory Branch of Communicable Disease Center, Montgomery, Alabama
Rocky Mountain Laboratory, Hamilton, Montana

Laboratories Operated by State and Local Governments:

State Laboratories:

* California, Department of Public Health, Berkeley
Florida, Board of Health, Jacksonville
* Illinois, Department of Public Health, Chicago
Indiana, State Board of Health, Indianapolis
Louisiana, Department of Health, New Orleans
Maryland, Department of Health, Baltimore
Massachusetts, Department of Public Health, Boston
* Minnesota, Department of Health, Minneapolis
Missouri, Division of Health, Jefferson City
Nebraska, Department of Health, Lincoln
Nevada, Department of Health, Reno
New Jersey, Department of Health, Trenton
* New York, Department of Health, Albany
North Carolina, Board of Health, Raleigh
Ohio, Department of Health, Columbus
Oklahoma, Department of Health, Oklahoma City
Oregon, Board of Health, Portland
South Carolina, Board of Health, Columbia
Texas, Department of Health, Austin
Utah, Department of Health, Salt Lake City
Vermont, Department of Public Health, Burlington
Virginia, Department of Health, Richmond
* Washington, University of Washington, School of Medicine (acting for Department of Health), Seattle
Wisconsin, Board of Health, Madison
Wyoming, Board of Health, Cheyenne

Municipal Laboratories:

District of Columbia, Health Department, Washington
Los Angeles, Department of Health
New York, Public Health Research Institute

* Laboratories equipped for virus isolation *and* serological tests. Those not so marked usually equipped only for serological tests.

Insular and Territorial Laboratories:

Territory of Hawaii, Department of Health, Honolulu
* Government of Puerto Rico, School of Tropical Medicine, San Juan
Territory of Alaska, Department of Health, Anchorage

Laboratories Supported by Funds Supplied by the Federal Government:

* *Contractors under Commission on Influenza, Army Epidemiological Board:*

Dr. Thomas Francis, Jr., University of Michigan
Dr. T. P. Magill, Long Island College of Medicine
Dr. Jonas E. Salk, University of Pittsburgh
Dr. Harry M. Rose, Columbia University
Dr. William M. Hale, University of Iowa

* *Contractors under Office of Naval Research:*

Dr. W. Henle, Children's Hospital of Philadelphia
Dr. T. G. Ward, Johns Hopkins University

* *Grantees under Research Grants Program, U. S. Public Health Service:*

Dr. E. C. Curnen, Yale University
Dr. W. Henle, Children's Hospital of Philadelphia
Dr. M. A. Lauffer, University of Pittsburgh
Dr. G. R. Leymaster, University of Utah
Dr. C. G. Loosli, University of Chicago
Dr. H. Pinkerton, St. Louis University
Dr. D. H. Sprunt, University of Tennessee
Dr. T. B. Turner, Johns Hopkins University

* Laboratories equipped for virus isolation *and* serological tests. Those not so marked usually equipped only for serological tests.

TRAINING OF TECHNICIANS

It is appreciated that some of the participating laboratories may desire to refresh one or more otherwise experienced technicians in the procedures for the serological tests or the virus isolation technics. Accordingly, provision has been made to train a selected number of such persons at the National Influenza Strain. Study Center, Long Island College of Medicine, Brooklyn, N. Y. Unfortunately, such training cannot be given by the National Influenza Strain Study Center itself until February 1, 1949. However, Dr. T. P. Magill, Director of that Center, has offered to suggest a conveniently located laboratory where suitable technical training can be obtained before February 1, 1949, to anyone who inquires directly of him.

THE NECESSITY OF COÖPERATION

The World Health Organization influenza program will succeed in its purpose to prevent the recurrence of a pandemic of influenza only provided that a high level of coöperation is developed and maintained among practising physicians, diagnostic laboratories, and the offices charged with administration of the influenza program. The first requirement of a successful program is that physicians report promptly to their health departments or to one of the participating laboratories all suspected cases of influenza. As significant outbreaks occur, the appropriate administrative office—which, in the United States, is the Influenza Information Center at the National Institutes of Health, Bethesda, Md.—will take the necessary steps through the coöperating diagnostic laboratories to identify the reported disease definitively. When new strains of influenza virus are isolated from cases, these will immediately be studied antigenically in the National

Influenza Strain Study Center. Eventually, appropriate strains of the virus which have been isolated will be considered for possible inclusion in commercial vaccine.

With good fortune—and always provided that it received the high level of coöperation which is essential to its successful prosecution—the influenza program as conceived may finally lead to the discovery of superior immunizing varieties of influenza virus. When available in commercial vaccine, these new strains of virus may significantly reduce the potential hazard from influenza which constantly threatens the population of the United States and of the world.

The Lasker Awards

An Editorial in The New York Times

President Truman aptly bespoke the sentiments of the entire nation when, in his message congratulating the winners of the 1948 Lasker awards, he conveyed "the gratitude of the Government and of millions of Americans for outstanding contributions to the health of our people." Indeed, the presentation of these awards to three scientists and four public health administrators at the annual meeting of the American Public Health Association in Boston should serve admirably to stimulate greater professional attention and public interest in the fields of the seven 1948 recipients.

It was particularly notable that Dr. Selman A. Waksman of Rutgers University and Dr. Rene J. Dubos of the Rockefeller Institute should be cited jointly for their studies of the antibiotic properties of micro-organisms found in the soil. Most of the present success of the antibiotic drugs stems from their work. To Dr. Waksman goes the distinction of having discovered streptomycin, in addition to 100,000 other micro-organisms. Dr. Dubos led a research group that first studied germ-killers from the soil and found the first antibiotic used chemically.

The Lasker honor for Dr. Vincent du Vigneaud, head of the Department of Biochemistry, Cornell University Medical College, New York, recognized his studies of trans-methylation and contributions to the chemistry of biotin and penicillin. Outstanding administrative achievements earned the awards given to Dr. Martha M. Eliot, associate chief of the United States Children's Bureau, and Dr. R. E. Dyer, director of the National Institute of Health at Bethesda, Md. The Lasker group award went to the Department of Medicine and Surgery, Veterans Administration, and especially Dr. Paul R. Hawley, its former chief medical director, and Dr. Paul B. Magnuson, Dr. Hawley's successor. The thousands of lives saved by the work of these distinguished leaders in the medical field stand as indisputable evidence of their right to the honors that have justly been bestowed upon them.

—*New York Times*, November 19, 1948.

Influenza in California During 1947 and 1948*

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Viral and Rickettsial Disease Laboratory of the California State Department of Public Health, Berkeley,† and the Infectious Disease Laboratory of the San Francisco Hospital‡

THE behavior of influenza in California during the past two years has been unusual in several ways. In the first place there have been two statewide epidemics of influenza A, the first over the period from January to May, 1947, and the second from November, 1947, to February, 1948. The first outbreak appeared to originate at the Fairfield Army Air Base, shortly after the onset of the disease at Lowry Field in Colorado, and thereafter spread rather slowly and circuitously over the state, causing an explosive outbreak in the Fresno schools as late as May, during exceedingly hot weather. Scattered cases occurred throughout the summer, but it was not until late November, 1947, that community outbreaks of considerable size were reported. The first of these was in the area east of Los Angeles. By late December, the large urban areas of the state were affected, and cases continued to occur during the following two months. The overall incidence of the disease in both epidemics can only be roughly estimated. It was presumably low for the state as a whole, though high in certain communities.

A second feature which was of interest was the marked antigenic variation between the strains of influenza A virus isolated during 1947 and 1948 and strains isolated previously. This was in keeping with reports from other parts of the country.[1-3] The implications of this marked change are of considerable importance, from the standpoints of epidemiology and of control, and the present paper is concerned largely with the effects of this antigenic variation.

Various methods have been used to investigate the strain variation and certain of its effects: (1) The relationship of the new (1947–1948) strains to "old" strains has been studied by means of cross-agglutination inhibition tests with strain-specific ferret antisera. (2) The antibody levels against various strains have been determined in a group of healthy adults. (3) The distribution of titers in the acute phase sera and the increases in antibody for various strains in patients with clinical influenza have been studied. (4) The increase in antibody for various strains following vaccination with commercial vaccines has been measured.

MATERIALS AND METHODS

Virus Strains—The Influenza A strains used were PR8, Olson (Calif., 1943), Skopp (Calif., 1947), and Spirup (Calif., 1948). The Skopp strain was adapted to the amniotic sac of chick embryos following two intra-nasal passages in ferrets. The Spirup strain was isolated directly in the amniotic sac of

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† With the support of the International Health Division of the Rockefeller Foundation.

‡ This laboratory is supported by the Divisions of Medicine and Pediatrics of the University of California Medical School and by the Department of Public Health of the City and County of San Francisco.

TABLE 1

Cross-Agglutination Inhibition Tests with Strain-Specific Ferret Antisera

Strain	Ferret Serum			
	PR8	Olson	Skopp	Spirup
PR8 (Puerto Rico, 1934)	512 *	128	8	16
Olson (Calif., 1943)	128	512	128	128
Skopp (Calif., 1947)	8	16	256	256
FM1 (N. J., 1947)	32	32	256	512
Spirup (Calif., 1948)	16	16	256	256

* Numbers indicate reciprocal of serum dilution which completely inhibited agglutination of chicken erythrocytes by test strain.

chick embryos. Both were subsequently passed via the allantoic cavity and produced fluids of high agglutinating titer.

Agglutination Inhibition and Complement-Fixation Tests—These were carried out according to methods employed in this laboratory for some time and are described in full elsewhere.[4, 5]

Ferret Antisera—Animals were inoculated by the intranasal route with 2.0 ml. of either throat washing or allantoic fluid. Immune sera were obtained by bleeding the animals once or more between the 12th and 21st day after this single inoculation.

Human sera—Pre- and post-vaccination sera were obtained from various student groups at the University of California Medical Center and from employees of the Oakland City Health Department.* The majority of sera from patients with influenza were collected in the San Francisco Bay area. Others were submitted from various parts of the state to the Viral and Rickettsial Disease Laboratory for diagnosis.

RESULTS

Tests with Strain-Specific Ferret Antisera—The relationships of the new strains to older Type A strains were investigated in a series of cross-agglutination inhibition tests. Results are summarized in Table 1. It may be noted that: (1) the various 1947 and 1948 strains appeared to be similar in behavior; (2) the antisera for these strains had moderately high titers against a 1943 (Olson) strain; while the 1947–1948 strains were not inhibited to a significant degree by Olson antiserum; (3) that none of the 1947–1948 strains showed a significant cross in either direction with the PR8 strain. Stated in another way, the 1943 strain varied only in moderate degree from the PR8 strain, since there was cross-agglutination inhibition of considerable degree in both directions. Following further variation in 1947 there was a one-way cross with the 1943 strain, but no significant cross in either direction with PR8. Finally, no significant differences were noted between two strains isolated in 1947 (Skopp and FM1) and four strains isolated in 1948 (represented by Spirup).

ANTIBODY TITERS FOR NEW (SKOPP) AND OLD (PR8) STRAINS IN NORMAL INDIVIDUALS

The distribution of antibody titers for the two strains in a group of 159 individuals from the San Francisco Bay area is presented in Table 2. These

TABLE 2

Percentage Distribution of Antibody Titers for PR8 and Skopp in a Group of 159 Adults in the Fall of 1947

	Titer			
	8 or less	16–32	64–128	256 or more
PR8	14%	32%	38%	16%
Skopp	74	18	8	0

* These individuals were inoculated under the direction of P. K. Condit, M.D., to whom the authors are indebted for making this material available.

TABLE 3

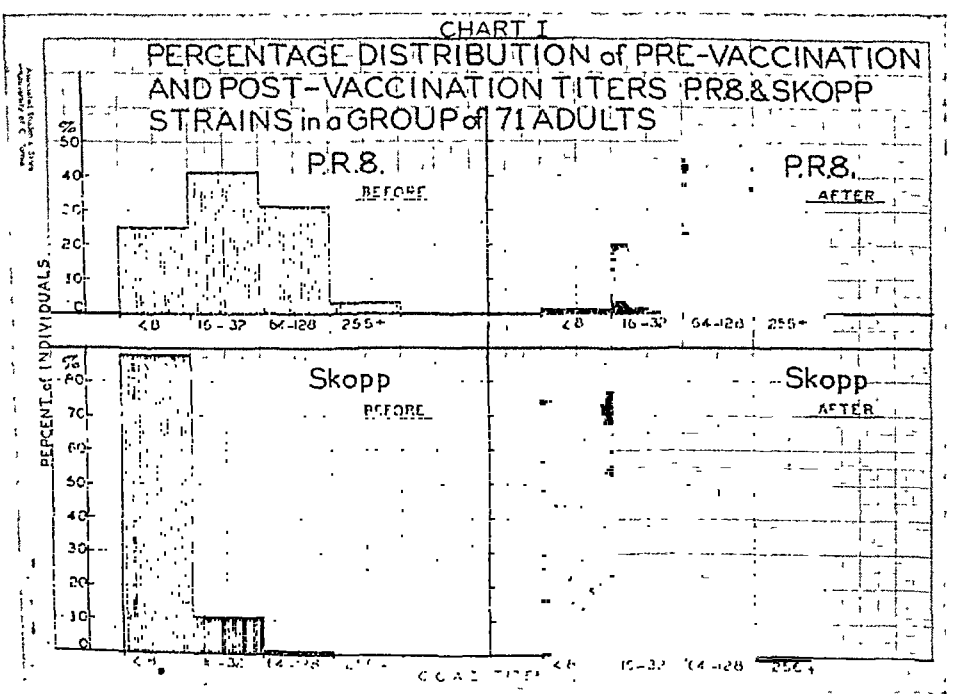
Percentage Distribution of Antibody Titers for PR8 and Skopp in Acute and Convalescent Phase Sera from 69 Patients with Influenza

C.C.A.I. Titer	PR8		Skopp	
	Acute	*Convalescent*	*Acute*	*Convalescent*
8 or less	39%	10%	97%	8%
16–32	48	32	3	62
64–128	13	36	0	29
256 or more	0	22	0	1
Number with Fourfold of greater rise in titer	45		62	

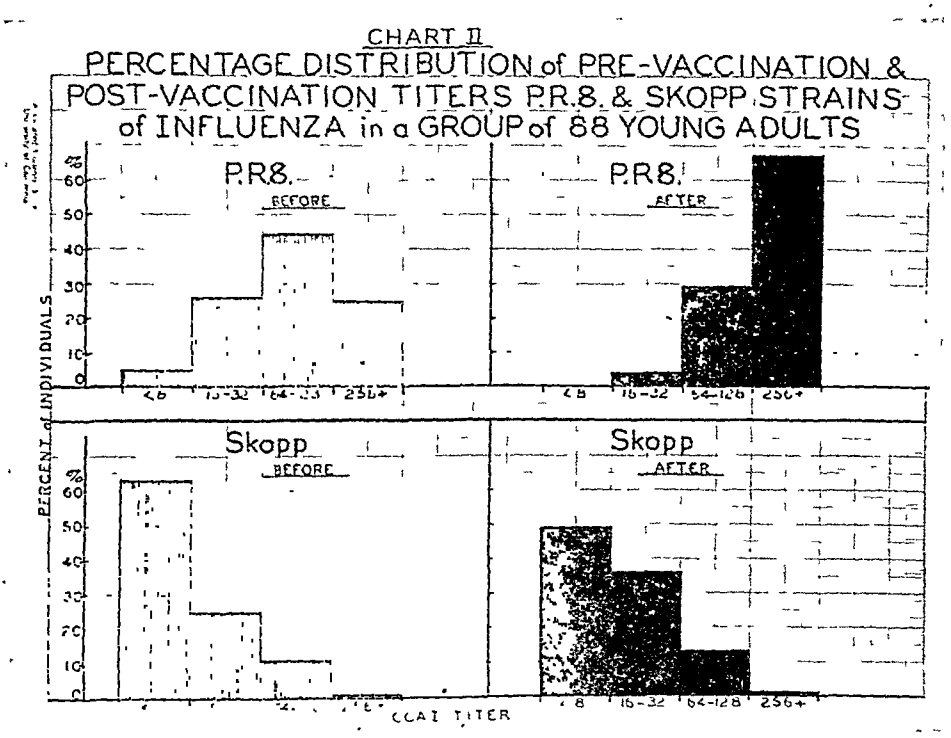
persons were bled during the fall of 1947, i.e., between the first and second outbreaks of influenza. The data show that antibody for the PR8 strain was widely distributed in adults and was frequently found in high titer. On the other hand, three-fourths of the persons tested failed to show levels of antibody for the Skopp strain greater than 8.

Antibody Levels in Patients with Influenza—For the purposes of this discussion the acute phase serum titers for the two strains are of most interest. Results are presented in Table 3. PR8 titers of 16 or more were found in the sera of 42 of the 69 patients. In contrast, only 2 of the 69 patients had titers of 16 when tested with the Skopp strain, the remainder falling in the groups with titers of 8 or less than 8.

The number of patients showing fourfold or greater increases in titer to the two strains is noted in passing, in order to bring out the fact that the experience of the past two years has emphasized the danger of relying on agglutination-inhibition tests using only the PR8 strain for purposes of diagnosis.



Influenza in California during 1947 and 1948



Influenza in California during 1947 and 1948

Failure to establish the diagnosis in 24 of the 69 cases would have resulted in this series. An apparent discrepancy between the number of patients with significant increases in titer and total number of cases of influenza is explained by the fact that in several instances the diagnosis was made by means of complement-fixation tests when agglutination-inhibition tests with both PR8 and Skopp strains had failed to show significant increases in titer.

ANTIBODY INCREASE FOLLOWING VACCINATION

The effect of this antigenic variation on the antibody response following vaccination was investigated in two experimental groups. The first group received an "old" vaccine which was prepared from PR8, Weiss and Lee strains. The data in Chart 1 show that there was a fairly good response to the PR8 strain. This is brought out by the shift of large numbers of persons from the low-titer into the high-titer groups. There was no comparable shift when sera were tested with the Skopp strain, the great majority of individuals remaining in the group with titers of 8 or less than 8.

The second group received a similar vaccine in which the Weiss strain had been replaced by a 1947 strain (FM1). Results are summarized in Chart 2. The response to the PR8 strain was exceptionally good. The response to the Skopp strain, which is antigenically very similar to the FM1 strain (Table 1), contrary to expectation, was disappointing. Half of the group still had titers of 8 or less than 8.

DISCUSSION

These studies emphasize the fact that influenza is not a static disease and that the influenza virus, which has shown marked variability in the past, continues to behave in an unpredictable man-

ner. The problems of controlling this disease have been affected by recent developments in a number of ways.

In the first place it has been generally held that almost all adults have signficant amounts of influenza antibody.[6, 7] This concept is based on work done with "old" strains, such as PR8, and, while it is true when one speaks of influenza in terms of the "old" strains, it is not true with reference to the strains isolated in the last 2 years. Relatively few of the individuals studied in these investigations had antibody for the new strain. It would appear that such a situation favored a rather explosive epidemic of influenza. Paradoxically, the reverse occurred. There were two outbreaks rather than one, and both were marked by a rather low incidence and continued over a long period of time. It is perhaps fortunate that this change in antigenic character was not associated with any obvious increase in virulence.

The uniformly low antibody levels in the acute phase sera of patients with influenza raises again the question of the relationship between antibody titer and susceptibility. Data acquired in 1943–1944 [8, 9, 10] supported the argument that such a relationship existed in the case of antibody to the current epidemic strain. The relationship was far less definite or absent with antibody to the PR8 strain. The data presented in this report show that in 1947–1948 infection often occurred in individuals with PR8 antibody titers even as high as 128. On the other hand, patients with influenza were in every instance found to have Skopp antibody only in very low titer, if at all, during the acute phase of their illness. A strong argument could be made that influenza was likely to occur only in individuals with a low Skopp antibody titer, were it not for the fact that in the group of normal individuals studied the proportion with high Skopp titers was not much greater than in the group of influenza patients.

A second effect has been to make it increasingly difficult to arrive at a serological diagnosis of influenza. The agglutination-inhibition test, which is generally used as a routine diagnostic procedure is relatively strain-specific,[11] and to be maximally effective should be run with strains isolated from the current epidemic. This is often difficult from the technical standpoint. Our laboratory, in the face of this problem, no longer uses the agglutination-inhibition test as a routine diagnostic procedure but has shifted to the complement-fixation test, which is not strain-specific when allantoic fluid antigens are used.

The third effect of importance has been on the potential value of vaccines. There is little doubt that in the past a considerable degree of protection has been provided by combined influenza A and B vaccines in epidemics of both influenza A [12] and B.[13, 14] However, it appears that the old vaccines do not produce satisfactory antibody responses to the new type strains and, in 1947, produced relatively little protection during an epidemic.[1, 2, 3] Even the incorporation of a new strain has not provided a completely satisfactory solution to the problem, if one takes the antibody response as a measure of increase of resistance. It would seem that the present problem could be clarified by further strain studies, particularly with monovalent vaccines, and that vaccines might be improved by the incorporation of other strains. There remains, however, the disconcerting possibility that further strain variation will occur, and that the future strains will be more unlike rather than more like the old strains.

SUMMARY

1. Two state-wide epidemics of influenza A occurred in California during the period 1947–1948.

2. Virus strains isolated during the two

epidemics were similar, but differed markedly from previously isolated influenza A strains

3. Antibody for the new strains was present in significant amounts in only a small proportion of 159 healthy adults tested in the San Francisco Bay area

4 The acute phase sera of patients with influenza were found to have antibody for the new strains only in very low titer

5 Poor antibody responses for the new strains were obtained with an earlier type combined influenza vaccine and with a vaccine containing a 1947 strain

6 Certain effects of the appearance of new strain types on the development of effective influenza vaccines are discussed

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International Society of Hematology

The first formal Congress of the International Society of Hematology was held in Buffalo, N. Y., in August, with more than 700 persons representing 20 nations attending. This society is an outgrowth of the International Rh and Hematology Conference held in Dallas, Tex., and Mexico City in 1946. The next meeting will be held in 1950 in Cambridge, England. The officers elected for the next two years are as follows:

President: Sir Lionel Whitby, Regius Professor of Physics, Cambridge University, Cambridge, England

Secretary General (Europe) Dr Marcel Bessis, *Laboratoire de Recherche, Paris*

Secretary General (Western Hemisphere) Sol Haberman Ph D, Baylor University Hospital, Dallas, Tex

Secretary Treasurer, Dr Martin Hynes, Department of Medicine, Cambridge University

Effect of Rising Hospital Costs on Group-Payment Plans*

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DISCUSSION of this question must recognize at the outset the basic functions of a group-payment plan for the hospital service. They are two: the *collection* of "payments" of money from large numbers of subscribers over a stated period of time; the *disbursement* of "payments" of money to hospitals which provide specific services to the subscribers during that period of time. The incoming group-payment must, in the long run, equal the outgoing payments to hospitals, with proper allowance for administrative expenses.

The main effect of rising hospital costs upon group-payment plans has been to intensify the problem of *"how to pay hospitals adequately and equitably"* for services provided to subscribers as contract-benefits. Sheer growth of membership has made this an important problem. The changing price level has brought it sharply to the attention of Blue Cross, the hospitals, and the people. No single formula is equally acceptable to all hospitals, whether the basis of payment be cost, established charges, average collections from non-contract patients, or a uniform negotiated rate for all hospitals.

The problems of rising costs are basically different for voluntary hospitals from those of proprietary and government hospitals. The proprietary hospitals serve a relatively small number of patients, each of whom is expected to pay the hospital's established charges. The other group serves mainly indigent cases; and patient fees are relatively less important than taxation as a means of financial support.

The commercial insurance companies provide cash allowances rather than service benefits in their policies. Consequently, reimbursement of hospitals for service is not an immediate problem for such organizations. Their contractual arrangement is to provide a certain number of "dollars" on behalf of policy holders. They are not responsible for contracting with hospitals to furnish stated amounts and types of service.

Before proceeding to a discussion of possible solutions, and an appraisal of prospects for their success, I would like to review the present situation of American hospitals, together with certain events and trends which have made voluntary hospital economics what it is today. The analysis and history will deal with services, costs, and financing.

HOSPITAL SERVICES AND COSTS

The replacement value of our 6,300 "registered" hospitals exceeds $6,000,000,000, as compared with scarcely $3,000,000,000 in 7,000 institutions 20 years ago. Some hospitals have disappeared. A few new ones have been organized. Many have been reorganized. The growth in value has resulted

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

from an expansion of existing hospitals and a substantial rise in the general price level.

The annual national hospital bill is estimated at about $2,200,000,000, which is slightly more than one per cent of the estimated annual national income, and more than twice the costs of service in 1928. Private resources are the main income for hospitals treating acute medical and surgical cases. Government hospitals provide most of the patient-days of care for mental and tuberculosis cases.

The total annual hospital bill has increased through the influence of several factors: the higher general level of prices, the increased number of people hospitalized, and the greater number and variety of services provided. Hospital wages are now approaching the amounts paid in other fields of employment.

Cost per inpatient case has not risen proportionately with cost per day, since the average length of stay has been reduced for most types of illness. The reduction applies particularly to surgical and obstetrical cases, and has been as much as 40 per cent in some institutions.

There has been a recent reduction in the demand for bed care among voluntary hospitals. This may be temporary, but the trend is noticeable in all parts of the country. Several factors have contributed to this condition; namely: the lowered birth rate, the practice of early ambulation, the increased use of diagnostic facilities by ambulant patients, and the lack of "ready cash" for elective surgery and hospitalization.

Many hospitals have diverted their attention from plans for expansion to a struggle for existence. It is not the first cost, but the upkeep, which causes most financial difficulties.

Every dollar invested in hospital facilities requires about 35 cents annually for expenses of operation. The depreciation on a $1,000,000 hospital's plant and building equipment is about $30,000 annually. But operating expenses for salaries and supplies are about $350,000 each year. The total annual costs of maintenance for a hospital are about 12 times the amount necessary as an allowance for replacement. Replacements or modernization of an existing hospital may, of course, effect a net saving to the community by permitting economies in current operation.

CURRENT PROBLEMS OF HOSPITAL FINANCE

The problems of hospital cost have their counterparts in the efforts to stabilize and achieve hospital income. There are three main sources of income available to voluntary hospitals, in differing proportions for each community and institution.

1. *Patient Fees*
   a. Group-payment subscribers
   b. Individual patients responsible for their own bills.
2. *Taxation*—This includes block-grants, as well as payments for services to cases "approved" by local, state, and federal government agencies.
3. *Philanthropy*, in the form of investment income, support by community chests and federations, and individual contributions.

Most voluntary hospitals have relied, to greater or less degree, upon taxation and philanthropy for a part of their current support. Public policy has required the hospitals to render service to patients in accord with their needs, and to look to the community for later reimbursement.

At the present time a great many hospitals report current expenses which exceed current income from all sources. The polite phrase for this result is "unreimbursed community service." The vernacular term is "deficit."

The net deficit of a specific hospital may be caused by one or more of the following: (a) a scale of charges for

service to individual patients which are below the amounts such patients are able and willing to pay; (b) demands by the community for services which involve costs beyond the amounts which the public pays for such services in taxes or philanthropy; (c) contractual arrangements with group-payment organizations for services at rates which are less than cost, or less than such subscribers as a group should reasonably be expected to pay for their care; (d) charity discounts to individual patients beyond the limits of public necessity and convenience, or beyond the amounts for which community reimbursement has been budgeted or guaranteed.

INCOME PROBLEMS

It is not always possible for a hospital to adjust its income to the expenditures incurred on behalf of patients. Charges to individual patients can be increased, and such rates, particularly for board and room service, are now much greater than in former years. Likewise, grants from government agencies can ultimately be increased, but usually with a time lag as far as costs are concerned, and nearly always with a reluctance on the part of the official agencies to meet the full costs of services to cases "approved" by their representatives. Even the enlightened Assembly of the Commonwealth of Pennsylvania, which appropriated $12,260,000 to 180 voluntary hospitals for the 1947–1949 biennium, has established a ceiling of $5.50 per day for reimbursement for the care of medical and surgical cases.

Most rigid of all types of hospital income are the various forms of voluntary philanthropy, namely: investment income, community chests and federations, and individual voluntary contributions. These amounts are not decreasing, but they finance a much smaller amount of hospital service than ever before. In the Philadelphia area, 10 years ago, they represented 30 per cent of the income of voluntary hospitals. Now the percentage is less than 15 per cent. The ratios are, of course, even lower in other parts of the country.

Good hospital care costs money which must be paid by someone. Up to the present time, voluntary hospitals have been able to survive half "pay" and half "free," as far as the patients are concerned. But behind the program of charitable service by the institution there has always been a struggle by the management and trustees to obtain current funds to pay salaries and purchase supplies for the hospital.

INCREASE OF CONTRACT PATIENTS

An outstanding feature of current finance is the reliance upon contractual income for relatively large groups of people and, accordingly, for large amounts of current revenue. The ability-to-pay principle in hospital charges has been gradually replaced by a "benefit" theory, according to which, individuals or groups are expected to pay their own way. This principle is sound, and it is proper that self-supporting people should also place hospital care in their family budgets along with other necessities.

The costs of hospital care have changed faster than the public's sense of responsibility for the financing of hospital service. A fund of $100,000 is now required to endow the annual maintenance cost of one occupied bed in an urban general hospital. Most voluntary hospitals do not have even this amount of endowment capital.

In the face of rising costs and broader utilization of hospital care by the community, fees charged to well-to-do patients cannot finance very much hospital service to other patients. Net revenue from patients is neither reliable nor adequate for financing charitable service in a hospital.

Private philanthropy finds that the same number of dollars will buy less service than formerly. Likewise, all patients find that the costs of food, clothes, and shelter have permitted a surprisingly small residue or savings for unpredictable hospital bills. Even with higher incomes, no individual can tell when he will need hospital care or what his sickness will cost him. And the standards of eligibility for free service, based on inability to pay for necessary care from private resources at the time of sickness, have been raised much above the levels thought socially justifiable a few years ago.

The problems vary in each voluntary hospital, but only in their detailed phases. Operating deficits are a common phenomenon, and they are not all traceable to unjustified expense. They tend to arise rather from a demand by the public for service in amounts and quantities beyond that for which they have been willing to pay.

PAYMENT OF COST ESSENTIAL

In the milieu of hospital financial problems which have just been described, it is important that group-payment plans assist in the solution of some of them rather than add new ones to those which already exist. Blue Cross subscribers, by definition, are self-supporting members of the community. They should pay their own way, and if they are concerned with free hospital service, it should be as contributors to, rather than recipients of, public charity and philanthropy.

A group-payment plan should pay the full costs of the services which are rendered to its subscribers during any period of time. In the long run, these payments should meet the costs of each hospital which contracts to provide service. If the costs of a specific hospital are so high as to outrage the public conscience, it should be reorganized administratively or excluded from full reimbursement in order to protect the interests of subscribers and well managed institutions.

Several factors make the application of the cost principle difficult to apply in practice. Such factors are the rapid or marked changes in the price level, differences in the type and complexity of the service provided by each hospital, changes in percentage of occupancy, and variations in the quality of management. Moreover, hospital costs may rise without regard to the adequacy of the subscription rates of group-payment plans, which rates can be adjusted only infrequently, and with the ultimate consent of the subscribers.

Upward changes in the costs of hospital care to subscribers of group-payment plans may be balanced by increased collections from subscribers, or by reduction of the hospital service furnished as a contract benefit. Many group-payment plans have felt that there is a maximum price which people will pay for hospital protection, beyond which price members of the public will decide to assume their risks individually. Accordingly, there has been a marked tendency to reduce the amount of protection rather than to increase the price.

DOLLAR-BENEFITS IN BLUE CROSS

The most common method of reducing protection has been the introduction of a co-insurance feature into the subscriber-contract, by which "dollar-benefits" are substituted for the assurance of certain forms of service. This feature has been applied particularly to board and room service. Board and room service has accounted for most of the recent increases in hospital costs, and has typically been "priced" relatively lower than the various special services. If dollar-benefits are to be substituted for service-benefits, the most defensible change is in the provision of board and room services which

are to some degree controllable by the patient as to type and duration.

Another widely adopted form of dollar-benefit is that applied to maternity admissions, an experience regarded by some actuaries as not an "insurable risk." Birth rates have always been higher among Blue Cross subscribers. People do not have babies *merely because* they join Blue Cross, but many do join Blue Cross *merely because* they expect to have babies. Strictly speaking, payments for maternity benefits might properly be charged to "public relations" expense, rather than included in the "loss-ratio" of a group payment plan.

The introduction of the co-insurance feature, or dollar-benefit, into group-payment plans has had several administrative advantages. It has permitted some group-payment plans to avoid a series of raises in subscription rates, which might have caused more cancellations than would have resulted from a reduction of benefits.

The dollar-benefit feature requires hospitals to collect additional sums from hospitalized subscribers in order to finance the service to such patients. The plan and the hospital have thus become " co-defendants " to the patients' " complaint " against rising hospital costs.

The dollar-benefit feature does not take the voluntary hospitals " out of the insurance business." They are still liable to provide their communities with certain types and amounts of service. The only question is whether it is better to collect the necessary funds (beyond existing dollar-benefits) directly from subscribers or through negotiation for a new rate of reimbursement from the group-payment plan.

Dollar-benefits are not the answer to the hospital's need for revenue or the public's desire for protection. A sick man needs service, not cash. Within his ability, he will pay the cash to assure the services he believes to be *necessary*.

FUTURE OF GROUP-PAYMENT

Health insurance is here to stay. The 32,000,000 Blue Cross subscribers and 19,000,000 commercial insurance policy holders are an impressive section of our public. These people are protected more or less adequately with various types of contracts. They all know that assurance of health service can be achieved through group action.

The primary concern of the public is how to obtain *necessary health "service."* This statement applies to the entire population, and particularly the participants in a group-payment plan for hospital or medical care. A group-payment plan that is well managed, and reasonably comprehensive and convenient, will grow in membership even though subscription rates are increased from time to time. If subscribers really like a plan (its benefits and management) they will pay whatever is necessary to keep it going. If subscribers do not like a plan, they will let it languish even at "cut prices." The essential problem thus becomes one of negotiation between the group-payment plan and the agencies which provide the service.

I have weighed and analyzed the data and arguments presented for and against the various forms of voluntary and compulsory health insurance. I have considered such problems as freedom of choice, quality of service, moral hazards, maintenance of standards, income limits, and eligibility for coverage. It is my opinion that all such considerations are secondary to the primary problem of how to contract for a certain type and quality of " service," and how to pay adequately and equitably for the contract benefits received.

From the standpoint of the hospitals, the most essential feature of a group-payment plan is assurance of enough money to enable them to produce the services they are expected to provide. Criticisms by hospitals of actual or

potential group-payment plans can nearly always be traced to the assertion or fear that insufficient funds are being, or will be, paid for the types and volume of service they are expected to give.

CONCLUSION

Group-payment plans should expect to pay the full costs of the services provided to their subscribers by hospitals. Expanding membership makes the payment of cost essential, since an increasing portion of hospital revenue is derived from this source. Payment of different amounts based upon different costs for nominally similar service is complicated, but can be achieved.

The general rise in costs creates a problem of obtaining sufficient money from subscribers to meet the costs of the hospital care provided. In my opinion, the payment of costs, even during changes in the price level, would be assisted by the following policies and procedures on the part of group-payment plans and voluntary hospitals.

1. *Provision of Comprehensive Service as the Contract Benefit* — The absence of dollar-benefits would focus the attention of the hospital and patient upon the service to be rendered rather than the fees to be paid for service at time of hospitalization. On the one hand, the subscriber would be more willing to pay an adequate subscription rate. On the other hand, the hospital would have an economic interest in providing only necessary care.

2. *Provision of "Basic" Rather than Semi-Private Board and Room Service* — This would not prevent assignment of patients to better accommodations when necessary to adequate care, or when voluntarily requested by subscribers after admission to the hospital. Much argument over "how much is enough" has arisen from the fact that contract accommodations contained a "luxury" element, and should be priced according to "ability to pay." Only basic service can be widely urged on the principle of public necessity and convenience.

Two types of dollar-benefit may, in the writer's opinion, be included in a non-profit group-payment program without doing violence to the principle of providing necessary service. One is a dollar-benefit for maternity cases; the other is substitution of suitable cash allowances for service benefits when a subscriber voluntarily elects to utilize other than "basic" room accommodations.

3. *Closer Coördination of Hospital and Medical Group-Payment Plans* — Voluntary hospitals and their attending staffs are professional partners, but economic competitors. Private medical or surgical fees to group-payment hospital patients have been the cause of considerable misunderstanding between doctor and patient. On the one hand, the physician may hesitate to give charity service to a Blue Cross subscriber, even though he cannot pay from his private resources. On the other hand, a Blue Cross subscriber may feel that, with hospital coverage only, he has less protection than he would have enjoyed as a "charity case." The future of private medicine and voluntary hospitals is interdependent. The total expense of hospitalized illness must be budgeted as a single item if voluntary prepayment is to be satisfactory to patients, doctors, and hospitals.

4. *Subscription Rates Must Be Payable on Terms That Permit the Widest Possible Participation* — Comprehensive hospital and medical protection requires a contribution by the employer if low-income workers are to enroll in large numbers. The contribution by the employer may be a proportion of the subscription rate, or a supplemental payment above a uniform deduction for each employee.

It is immaterial whether the total subscription is ultimately paid by the

customer, the stockholder, or the wage-earner. The important fact is that payments by the workers be considered reasonable by them. The practice of employer contribution is, of course, generally required by commercial insurance companies offering group life and health benefits. An increasing number consider the contributions as a form of additional wage or prerequisite for all employees.

Hospitals collect money in order to provide service. They do not provide service in order to collect money. But money and service are inseparable. Neither a group-payment plan nor a hospital can long continue to expend more money than it receives, even for a good cause.

The basic problem caused by rising costs is simply how to raise and disburse enough money to meet those costs. Dollar allowances are merely a stopgap. They are basically an admission that the public does not care enough for hospital protection to pay the price, or that they wistfully hope the bill will be paid from some other source. Group-payment is the best way to raise the money. If group-payment plans are to survive under voluntary auspices, they must pay the voluntary hospitals what it costs to service the group-payment subscribers.

Lectures to the Laity—New York Academy of Medicine

The Fourteenth Series of Lectures to the Laity of the New York Academy of Medicine, 2 East 103rd Street, New York City, began November 17 with the Linsly R. Williams Memorial Lecture by Robert P. Patterson, former Secretary of War, on "Some Problems in Law and Medicine." The second number was on the subject "The Endocrines: Masters or Servants?" by Ephraim Shorr, M.D., of the Department of Medicine, Cornell University Medical College, New York. The third address was "Science under Dictatorship," by Leo Alexander, M.D., Director, Neurobiologic Unit Division of Psychiatric Research, Boston State Hospital.

Other lectures will be held on January 13, January 27, and February 10, all at 8:30 P.M. The first of these will be on "Blood and Man," by William C. Boyd, Ph.D., of Department of Biochemistry, Boston University School of Medicine. John Ray Dunning, Ph.D., Professor of Physics, Columbia University, New York, will speak on "The Future of Nuclear Energy," and finally George B. Gardner, M.D., Executive Director of the Judge Baker Guidance Center, Boston, will speak on "The Criminal in Our Midst." Admission is free and the public is invited to attend. The lectures are broadcast by WNYC and WNYC-FM.

The "Yes" and "No" of Nutrition and Natural Resistance to Infectious Disease*

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IT is my estimate that this audience expects, and is entitled to, a straightforward answer to the question, "Can the food we eat affect our resistance to infectious disease?" In our laboratory we have been facing this question for the past eight years. Now, in fifteen minutes, I must give you my reply. It is a challenging assignment, and since, in Boston, we are not far from Walden Pond, it is perhaps fitting that we recall the challenge of Thoreau, "Simplify! Simplify!" Simplify we shall have to, but what answer will we give to the question, "Can the food we eat affect our resistance to infectious disease?" My answer is, "Sometimes yes, sometimes no." In the rest of the time allotted to me I shall have to show you (1) that my answer is "straightforward" and not a kind of scientific pussyfooting, and (2) how I believe our knowledge of this controversial subject can be extended so that the answer can be made to approach the unequivocal.

To begin with, the question, as I have put it, admits initially that there is such a phenomenon as natural resistance to infectious disease, a term we may define as an abbreviated description of the direct observation that a pathogenic microbe, be it bacterium, virus or fungus, does not always produce the signs and symptoms of infectious disease when presented to a prospective host even though that presentation may be the very first for that particular host. Such hosts we designate as "naturally resistant." When next we come to inquire as to the basis for this natural resistance we are first presented with the biological fact that such natural differences in susceptibility to infectious disease are capable of being categorized by the same biological groupings we designate as species. Thus man, as a species, is susceptible to measles, but mice are not, or, as we say, mice are "naturally resistant." Why this is so we have no very good way of knowing, although we suspect that the real reason is connected somehow with the genetic basis for the difference between mice and men. This *interspecific* difference is such a great one, on any plane one may want to consider it, that I think you will not accuse me of being fainthearted if I suggest it is too much to expect that diet can alter these facts. So that in these instances of inter-specific differences in susceptibility to infectious disease we must say, "No" to the question of the influence of diet.

It is sometimes observed, however, that *within* a species, great differences in susceptibility may exist among populations when a microbic species, which experience has shown generally to be pathogenic for the given host species,

* Presented at a Joint Session of the Food and Nutrition and Laboratory Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

is presented in the identical way to representative samples of the host. This is, of course, the familiar fact of variation of a biological character, in this instance, susceptibility to a given pathogen. Now, again, variation may be due to either (1) genetic or (2) environmental causes. Diet is an environmental agent and now the trail begins to grow warm. In the case of these *intra-specific* differences in natural resistance does diet exert any influence? The answer— "Sometimes yes, sometimes no!" I answer in this wise, not because I approve of being pusillanimous while on a public platform, but because of the hard facts of the natural world. The fact is that even environmental agents, such as diet, must produce their effects in the physiology of the host and this physiology is operating within a genetic framework. In natural populations of hosts this framework is sometimes plastic to the effect of environment, and thus an environmental agent makes its effect evident, or the genetic framework is rigid and the environmental effect is not possible, the given character being innately determined in its appearance or non-appearance. Our scientific interest is now focused on describing those genetic conditions in which the genetic framework, or genotype, is plastic to the effect of diet. In the instance of mice, and an infectious disease of mice, Salmonellosis, I believe we are now in possession of information, obtained in our own laboratory,[1-3] which will permit us to offer such a description. Without further ado let us examine experimentally the various genetic circumstances in which host and pathogen can meet, and see for ourselves when diet has an effect on natural resistance and when it does not, when we can say "Yes" and when we must say "No."

Before we do this I shall beg your permission to abbreviate my remarks somewhat. From what has preceded I think it is obvious that in any examination of our problem we must take into account the genetic factors, *both in host and pathogen.* Thus far we had not mentioned the variation existent among pathogenic species, but there is certainly no novelty in the fact that virulent and avirulent representatives are recognized to exist, and a third possibility is, of course, a pathogen population consisting of a mixture of these two. Among hosts we can recognize three great classes also: (1) Inbred, genetically uniform, resistant stocks, (2) similar susceptible stocks, and (3) outbred, genetically heterogeneous stocks. Now when these three classes of hosts meet with these three classses of a pathogen species, we can examine the effect of diet. That will make nine instances which we will test. But what diets will we test? For reasons which here must be passed over let us test the effect of a diet of natural foodstuffs, whole wheat and milk, and compare that with a synthetic diet containing all of the essentials known for mice. The results are presented in Figure 1.

In eight out of the nine instances set forth there was no dietary effect observable in terms of differences in survivorship following infection. But in one instance there was such an effect. And so, when the question was put in nine different circumstances, eight times the answer was "No," and only once was it "Yes." On the face of it this is a poor showing for those who would claim that nutrition *does* influence natural resistance, but let us examine more closely the circumstances of the single "Yes." In this instance hosts which were genetically heterogeneous were infected by mixed populations of virulent and avirulent pathogenic bacteria. But in the natural world this is what probably is going on all the time. Certainly man is genetically heterogeneous and it is very probable that the pathogen populations he encounters are not pure

The Effect of a Natural (N) and a Synthetic (S) Diet on Survivorship following Infection in Nine Different Genetic Circumstances

		Host-Genotype		
		Inbred, selected, resistant	Random-bred, (outbred) non-selected	Inbred, selected, susceptible
Pathogen-Genotype	Uniformly virulent	N-Died S-Died	N-Died S-Died	N-Died S-Died
	Mixed virulent and avirulent	N-Survived S-Survived	N-Survived ↑ Dietary effect ↓ S - Died	N-Died S-Died
	Uniformly avirulent	N-Survived S-Survived	N-Survived S-Survived	N-Survived S-Survived

FIGURE 1

From H. A. Schneider, Transactions of the New York Academy of Medicine, 1948 Eastern States Health Education Conference. (By permission.)

cultures, but mixed. So the single "Yes" is more important than it appeared at first sight, for it represents the vast bulk of the experience of the natural world. It is the abstractions of the laboratory which have provided us with several replies of "No." These negative answers are not false or wrong, rather we must say that in the natural world their probability of occurrence is a small one. We might say, then, that in the natural world the answer to our question, "Can diet influence natural resistance?" is a little "No" and a bigger "Yes."

Returning to our own specific disease model, in terms of mice and mouse typhoid, we can now say that the dietary agent responsible for increased survivorship is in the whole wheat, and, by experiment, has been localized in the germ. It is probably a new nutritional entity since it is not replaceable in its effects by any of the nutrients thus far

recognized, including all of the known vitamins. We are now engaged in the task of isolating and identifying this compound. When we have it in our hands we will, I am sure, by increasing the level at which it exists in the dietary environment, diminish the "No" and increase the "Yes."

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"Protect the Family . . . Stamp Out VD" 1949 Social Hygiene Day Theme

Aimed at eradicating the nation's No. 1 communicable disease problem, the venereal diseases, the nation-wide observance of National Social Hygiene Day has been scheduled for February 2, 1949, according to Dr. Walter Clarke, Executive Director of the American Social Hygiene Association.

The theme of this year's observance is "Protect the Family . . . Stamp Out VD." "More than ever today it is recognized that the fight against venereal disease is the fight for the strongest family life for our country," Dr. Clarke pointed out. "Syphilis and gonorrhea are two of the greatest enemies of marriage and parenthood," he said. "The fight against VD is a fight for the children of our country—children who have a right to grow up as whole human beings—whole in body, mind, and spirit with insight into the true place of sex in life.

"This year the American Social Hygiene Association is faced with a new challenge with the national emphasis on defense activities. The nation's Armed Forces recognize the protection of American family life as the chief reason and best way of preventing venereal diseases among military personnel."

The American Social Hygiene Association has been requested by the U. S. Interdepartmental Committee on Venereal Disease to aid in the problem of venereal disease control as well as in the encouragement of the establishment of wholesome recreational and other activities in all local communities.

Social Hygiene Day will be observed in many cities at meetings, rallies, institutes, and forums on February 2, and throughout the rest of the month.

Program and publicity aid materials may be secured by writing to the American Social Hygiene Association, 1790 Broadway, New York 19, N. Y.

A Community Program for the Control of Rheumatic Fever

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THE purpose of this paper is threefold: (1) to point out the importance of the problem, (2) to suggest a plan for community action in the control of rheumatic fever, (3) to urge physicians to initiate such community organization.

As a result of the work of Paul,[1] Swift,[2] Hedley,[3] Jones,[4] Wilson,[5] Sampson,[6] and many others, physicians are gradually becoming aware of the disease and its public health aspects. The public health aspects have been reviewed recently by Griffith,[7] pointing out that rheumatic fever, together with tuberculosis and syphilis, constitute the remaining big three infectious problems in American communities.

IMPORTANCE OF THE PROBLEM

Rheumatic fever, an acute, systemic, post-streptococcal, hypersensitivity syndrome with protean manifestations, is important, not only because of the morbidity and mortality, but because of its cardiac pathology, necessitating a public health program to include case finding, proper diagnosis, and provision for adequate long-time care.

Mortality statistics, in spite of under reporting, show a combined rheumatic fever rate for all ages of 20 per 100,000 in 1942.[8] From age 5 to 19, it is, among diseases, the leading cause of death.[9] Mortality statistics do not tell the whole story, for it is this infection which incapacitates and limits the earning power of many thousands during the prime of life. Furthermore, such handicapped individuals become nervously ill, frustrated and unhappy in their limited way of life. The size of such a group of individuals is shown by the medical examination of draftees, approximately 40 per 1,000.[10] Of the first 1,000 selectees rejected because of cardiovascular problems which the author assisted in reëvaluating in the City of Philadelphia, 69 per cent had either rheumatic fever or rheumatic heart disease.[11] In various cities throughout the United States, the incidence of rheumatic heart disease is shown by the following studies: in Cincinnati, 2 per 1,000[12]; in Philadelphia, 3.9 per 1,000[13]; in New York City, 8.8 per 1,000[14]; and in San Francisco, 2.2 per 1,000. In 1945 Sampson[15] reported studies of three different communities in California revealing an average incidence of 1.6 per cent.

The author, utilizing methods to be described later in this paper, found an incidence of 2.7 per cent in the school districts of Ontario and Upland, Calif., out of 2,769 children examined; while in Pasadena, a similar study of 2,159 children showed an incidence of 2.6 per cent.

The Los Angeles Heart Association sent out a questionnaire to 7,200 physicians on August 20, 1948, requesting information regarding the number of rheumatic fever cases, rheumatic fever suspects, rheumatic heart cases, and the

TABLE 1

Questionnaire on Rheumatic Fever, Rheumatic Heart Disease and Congenital Heart Disease

	Number of Patients			*Number Needing Institutional Care*		
	Total	*20 and Under*	*21–35*	*Total*	*20 and Under*	*21–35*
Rheumatic Fever	469	337	132	109	71	38
Suspected Rheumatic Fever	394	304	90	30	20	10
Rheumatic Heart Disease	1,726	607	1,119	238	73	165
Congenital Heart Disease	554	369	185	30	16	14
Total	3,143	1,617	1,526	407	180	227

number of congenital heart cases under private care; 23.9 per cent of the physicians returned the questionnaire in time for tabulation by September 7, 1948.

This response, although incomplete, shows the number of rheumatic fever patients in this county, and that 407 of them should be treated in an institution giving complete care.

In the past 9 months, on the Los Angeles County Hospital In-Patient Services alone, 234 patients with rheumatic fever under the age of 21 have been discharged, most of whom should be in a good convalescent hospital. Clearly, these facts show the need for organized efforts to control the disease.

ETIOLOGICAL FACTORS

Since World War I it has been generally known that rheumatic fever tends to occur in epidemics and to follow epidemics of streptococcal sore throat and scarlet fever. The best and most recent examples of this truth are the statistics obtained on my recent visit to the Far East Command. Statistics for 1947 were obtained from Colonel A. H. Thompson from the 8th Army Area in Japan, and from Colonel C. P. Ward from the 24th Corps Area in Korea.

The cases of rheumatic fever followed the streptococcal infections by 2 to 6 weeks. The very high percentage of rheumatic fever is unexplained. The usual percentage of post-streptococcal nonsuppurative complications in the United States is about 5 per cent.

Socio-economic factors appear to influence the occurrence rate of rheumatic fever as pointed out by Paul.[3] The disease also tends to be concentrated in families.[15] This thought must be correlated with the studies of the author showing that the home is a point of contact, and that a boy from a rheumatic home is not more likely to develop rheumatic fever after he leaves home than a boy from a non-rheumatic home.[16] All these facts, including psychological ones, should be utilized in an organized effort to control rheumatic fever.

TABLE 2

Relationship of Known Streptococcal Sore Throats and Scarlet Fever to Rheumatic Fever in Far East Command for 1947

	Total Number Cases of		*Total Number Cases of Rheumatic Fever*	*Per cent*
	Strept. Sore Throat	*Scarlet Fever*		
Korea	372	182	209	36.0
Japan	834	2,036	835	29.0

COÖPERATION A NECESSITY

To make proper use of the knowledge we already possess, requires the mobilization and organization of all community resources. Rheumatic fever cannot be controlled by the physician alone. The physician finds the socio-economic, the psychological, and the epidemiological aspects of the disease beyond his ability, and requires community coöperation. To this end, education of parents, teachers, social workers, school nurses, and, above all else, physicians, is necessary to detect the early manifestations of the disease, to practise the best child health care, to seek diagnostic serv-

ices, and to provide convalescent care with educational and occupational services.

ORGANIZED ACTION

There are promising signs of local action. In many cities such as Los Angeles, educational programs are given at regular intervals. Many states now require that the disease be reported, and in some large cities cardiac diagnostic services have been made available.

From the federal level, the Children's Bureau has been assisting state agencies since 1939. In 1944, the American Heart Association called a conference of medical, governmental, and social organizations, and adopted resolutions to (1) seek aid from public and private funds in order to increase the basic knowledge of the disease for professional education and for increasing public awareness, (2) to form a Council on Rheumatic Fever. This council was formed, and after consideration, felt that the greatest present need is to assist physicians and others to develop an overall community program for the control of rheumatic fever.

WHAT SHOULD BE DONE?

The pattern for rheumatic fever control should follow that utilized to control tuberculosis. The Framingham Tuberculosis Demonstration[17] set the pattern for an adequate community control. The following objectives were set up.

1. The magnitude of the problem must be known.
2. Expert consultation service must be provided for the practising physician.
3. Standards for diagnosis must be determined.
4. Economic and environmental studies should be evaluated.
5. Health education must be directed toward personal hygienic living and toward building of body resistance.
6. Provision for adequate treatment outside of the home for all economic levels should be made.

A LOCAL PROGRAM

Rutstein,[18] in a recent issue of the *American Journal of Public Health*, reported on and summarized the findings of a symposium on a community program for rheumatic fever. Many local control programs have been initiated. The most successful is the one at Stamford, Conn.

Summarizing the reported experiences of others and the writer's own experience in rheumatic fever, the following objectives were set up prior to instituting a rheumatic fever control program in a local California community.

1. Enlist the active coöperation of organized medicine.
2. Enlist the interest and aid of the local school officials, the public health officers, public health nurses, school physicians, school nurses, the local hospital administration, and civic groups as the P.T.A. and Junior League.
3. Establish a method for case finding.
4. Diagnostic Rheumatic Fever Clinic must be available without charge to all.
5. Follow up service organized.
6. Social service objectives determined.
7. Institutional care provided.
8. Educational and occupational guidance facilities must be made available.

The locality selected for this community rheumatic fever control program comprised the Ontario and Upland municipalities located in the Western end of San Bernardino County, California. This community is situated 50 miles inland from the sea coast, and is in the heart of the citrus and grape industries. The community became extremely rheumatic fever conscious because of the constant contact with patients from the Rheumatic Fever Unit of the Corona Naval Hospital. During the war, hundreds of patients from this unit were entertained and aided in many ways by the citizens of the area.

COÖPERATION OBTAINED

The administrator of the local hospital, Dr. A. A. Aita, and the president of the hospital clinical staff held dinner meetings at which the hospital medical

staff discussed the problem of rheumatic fever. The hospital and the staff agreed to give every aid in setting up the program. In this locality, all reputable physicians are members of the hospital staff.

CASE FINDING

The local school authorities, the school physicians, the school nurses, public health officials, and public health nurses gave full coöperation in case finding, examining every child in the schools, at ages 6 to 12 inclusive.

DIAGNOSTIC CLINIC ORGANIZED

The hospital administration provided space, consisting of a large waiting room, three examining tables, desks, chairs, gowns, and linen. A hospital technician, Flora Marvin, made appointments and managed the physical details of the clinic. The school nurses and public health nurses under the direction of Bertha Schwarzwelder, R.N., attended the clinic, one nurse assisting each examining physician. A careful history, complete physical examination, full blood count, urinalysis and sedimentation rate, electrocardiogram and fluoroscopic study were done on the first visit. For each patient admitted to the clinic, a record folder containing the above information was provided. The chief of the clinic consulted with each of the attending clinicians, namely, Drs. E. O. Carlson, G. S. Coltain, and R. N. Williams, and after careful discussion by the group, arrived at a diagnosis based upon the criteria set up by Jones [19] and Griffith.[20] Immediately upon the conclusion of the clinic, a letter was dictated to the hospital secretary, Audrey Richings, and typed in triplicate, the original copy going to the family physician or the public health physician, or the school physician; the second copy was filed in the record folder; and the third copy filed with the hospital's permanent records. The letter contained complete history, physical examination, record of laboratory results, diagnosis, recommendations for treatment, and an appointment for follow-up in 3 to 6 months' time if the patient was under the care of a private physician, or a return appointment in 2 to 4 weeks if the parents could not afford a private physician.

ADMITTANCE

All patients were admitted and studied without social service investigation of ability to pay. The patients from private physicians paid for laboratory work only if the physician so advised.

The attending physicians, the nurses, technicians, and secretary made no charge for their services.

The cost of the entire clinic per patient was $16 per case studied. The expense was met by the Community Hospital through its administrator and the Board of Trustees. The local Junior League provided funds for the second year of the clinic.

FOLLOW UP

The physicians returned their private patients for follow up consultations regularly.

The public health nurses visited the homes of both private cases and those with substandard incomes. Parents were interviewed by the physicians in the clinic and instruction was given. The public health nurses helped the parents to carry out such directions where no private physician was in attendance.

Careful attention was given to the early detection of upper respiratory infections and for possible recrudescence of rheumatic activity by the physicians and visiting nurses.

At the present time, a survey for possible streptococcal carriers is in operation. A culture is taken from all throats in the home where the patient resides.

Convalescent care in a rheumatic fever hospital was possible in only one

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case. It is believed that many of the patients, from the better as well as the poorer homes, would do better in a convalescent heart hospital. This method of treatment prevents to a large degree epidemic streptococcal throat infections and provides a routine of rest and adequate food. The psychological needs of the child are met better in the convalescent home. Educational facilities are provided by well integrated teachers, and occupational guidance as well as supervised play, aid greatly in the maintenance of a rounded development for the rheumatic child.

As a result of the community program at Ontario and Upland, 3,840 children were observed, with an incidence of the rheumatic state during 1946 of 2.74 per cent, and in 1947 of 2.2 per cent.

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Tuberculosis Nursing Course

The Department of Public Health Nursing, College of Medicine, Syracuse University, in coöperation with the New York City Department of Hospitals and the New York State Department of Health, will offer a course in tuberculosis nursing during the spring semester, 1949. The course is being offered for public health nursing supervisors and senior nurses, and those preparing for consultant positions. Field experience in tuberculosis community nursing will be given in Syracuse and clinical experience at Triboro Hospital, New York.

The semester runs from February 4 to May 31, with registration from January 31 to February 3. Apply to Margaret Shetland, Acting Director, Department of Public Health Nursing, Syracuse University, Syracuse, N. Y.

A Program of Inservice Training for the Health Department Staff*

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EXPERIENCE of the California State Department of Public Health has demonstrated that a real contribution to the improvement of a departmental program and its efficiency can be made by planned, continuous inservice training which meets the needs of the staff.

The California inservice program was started in January, 1947, on the recommendation of three staff committees which, over a period of more than a year, studied the problem and experimented with various phases of inservice training. Among the staff needs which were recognized by the committees were the following:

1. The orientation of new employees
2. Better understanding by all employees of departmental problems, planning, policies, and programs
3. Opportunity for a larger number of the staff to participate in planning, in solving problems, and in formulating policies
4. Help to all the members of the staff in acquiring a respect for the value of their own and other people's work and an understanding of the work problems of other people
5. Help to all the staff in acquiring a feeling of belongingness
6. Opportunity for all the staff to grow on the job
7. Involvement of the staff in the development of the inservice program

Certain difficulties stood in the way of the development of a complete inservice program. California is the second largest state in the Union. Although headquarters offices are in the San Francisco Bay area, a staff of approximately 800 persons is housed in 12 different buildings in four cities, or is working out of these offices in the field. The departmental program is broad and is expanding. Job classifications utilized by the department in the employment of staff range from unskilled workers to highly trained scientists and administrators. A fast tempo of work is maintained throughout the department, a factor which, at the start of the program, caused some administrators to question whether time could be spared for inservice training.

An analysis of the difficulties which have been mentioned revealed that it was impractical to start with a program that would meet completely all the needs which had been recognized. A pragmatic view was adopted and it was decided to start somewhere short of the ideal with a program which would meet some of the more urgent needs and which was sufficiently flexible to provide for growth and for change as other needs were recognized.

THE PRESENT PROGRAM

Although the Bureau of Health Education has administrative responsibility for inservice training, the program itself is conducted by the entire department, with broad staff participation in all of its phases. The program which has

* Presented before the Public Health Education Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

operated continuously with minor changes for nearly two years may be divided into four parts: orientation of new employees; general staff meetings; a house organ; and special educational opportunities for the staff.

1. *Orientation of New Employees*—Within a month after employment, new employees in key positions such as those in professional, administrative, technical, and senior clerical classifications spend 4 days in one hour visits to the San Francisco Bay area offices of each bureau and of the two Divisions, Laboratories and Local Health Services, which conduct operating programs. (The other three Divisions, Administration, Environmental Sanitation, and Preventive Medical Services, do not conduct operating programs but coördinate the work of bureaus.) Although the department maintains offices in four cities, headquarters of all divisions and bureaus are in the Bay area in either San Francisco or Berkeley.

The group of new employees is kept under 10, so that there may be opportunity for questions and informal discussion. Although a one hour visit does not permit the acquisition of very extensive knowledge, it is long enough for new staff members to get some understanding of program and problems, to become acquainted with some of the key members of the department staff, to see the physical plant and to observe some of the programs in action, as in the laboratories and in the offices where machine tabulation of data is done.

The orientation program for employees in key positions is regularly scheduled for the first 4 days of the last week of each month. Division and bureau chiefs have been requested by the director not to delegate responsibility for meeting with the group of new employees.

After the group of new employees in key positions has completed 4 days in this special orientation program, they meet with all other new employees for a half-day session on Friday morning with the director and the five division chiefs. This larger group usually numbers about 20 and includes all new employees. Discussion at this meeting centers around the overall program of the department and so serves the dual purpose of tying together the information which has been acquired by the special group in the 4 day program and of giving some orientation to new staff members who attend only this one session.

When the orientation program had been in operation for a year, we had on hand a backlog of more than 70 requests for inclusion in the program from employees who had been with the department for some time—in one case for 30 years. Arrangements were made to schedule two groups, both of which included new and old employees, for each month during the first 6 months of 1948. Division and Bureau chiefs willingly accepted the responsibility of devoting 2 hours instead of 1 each month to meeting with new employees.

Staff members of the State Department of Finance and the State Personnel Board have taken the orientation course. At the present time plans are under way to invite key staff of local health departments to participate in the program. The possibility of utilizing the program to orient the staffs of other state agencies and of local health departments was not originally contemplated. Without a planned, continuous inservice program it would not be possible to give this important educational service to other agencies.

2. *General Staff Meetings*—Although meetings of the administrative staff have been the custom in the department for some years, regularly scheduled, planned meetings for all the staff were not held before the inauguration of the present inservice program. The plan which has been followed since the start of the pro-

gram is to hold a 1½ hour general staff meeting on Friday of the week in each month, which is devoted to inservice training. Tea is served at the close of the meeting.

Programs for the current year are being selected on the basis of desires expressed by staff through a questionnaire which was distributed with pay checks in January; however, there is flexibility to meet situations which could not be anticipated and to give the staff an opportunity to hear visiting celebrities. There is a conscious effort to provide variety in topics and in methods of presentation. For example, these are typical programs: a panel discussion of legislative plans by the director and division chiefs; a presentation of research in encephalitis control by staff members participating in the research; group discussion of departmental policies relating to local health departments led by a representative of the American Public Health Association; the showing of new films and group discussion of them led by staff of the Bureau of Health Education; a presentation of state civil service policies and practices by the staff of the State Personnel Board.

Participants are asked to make clear presentations which can be understood by any intelligent person who is not an expert in the specific field covered but are warned not to "talk down" to the group. Frequently, technical material is presented. Nevertheless, the meetings continue to be attended by about an equal proportion of professional and clerical staff, apparently with equal enjoyment by both groups.

3. *House Organ*—Each member of the staff receives a copy of a house organ entitled "Just Between Us" which is issued in mimeographed form once a month.

Although the Bureau of Health Education has editorial responsibility, much of the material in "Just Between Us" is written and contributed by staff members throughout the department. A typical issue includes a message from the director, an article on personal hygiene, news of activities of the staff such as vacation plans, marriages, and births, a welcome to new staff members, a description of one phase of the departmental program or a personality sketch of a staff member. There is a sprinkling of cartoons, jokes, and rhymes. The style is informal, newsy, and friendly.

4. *Special Educational Opportunities*—Each bureau and division of the department provides, in varying degrees, planned programs of inservice education for its staff. The Personnel Office arranges refresher courses for the clerical staff. In addition, there has been recognized a need to provide opportunities for inservice education which are not limited to staff in any one division, bureau, or job classification. A beginning was made in arranging last spring a special course in California Government which was taught by a member of the faculty of the State University. Persons who enrolled were from professional, technical, and clerical fields, and ranged in job classification from bureau chief to senior stenographer. A departmental committee is now assisting the Bureau of Health Education in ascertaining staff needs for similar programs and in developing a plan to meet these needs.

EVALUATION

No formal attempt has been made to evaluate the inservice program. Its limitations are recognized and some of them have been mentioned.

There has been tangible evidence that the program has staff approval. The requests by staff members who had been with the department for a period of years to participate in the orientation program indicate that this service is helpful. These requests were often accompanied by a statement such as,

"The newest employee in our office knows more about the department than I." Comments of new employees have been collected. The one which pleased us most was made by a stenographer who, in describing the orientation program to a friend, said, "It's a wonderful place to work. You know, they really care about you." A good attendance has been maintained at the general staff meetings which have shown improvement both in methods of presentation and in audience participation. From comments of staff and from staff contributions of editorial material, it is known that "Just Between Us" is widely read and appreciated. There was a capacity enrollment in the one special course that was offered and we have had requests for additional courses.

Administrators report better staff morale and less staff turnover. Concern with these two problems was an important motivation in starting the inservice program. It is believed that the inservice program, by meeting, at least partially, the staff needs which have been mentioned, has contributed to this improvement.

During the period of our experience with inservice training there has been observable improvement in departmental administrative policies and operation. It is not possible to measure the contribution of the inservice program, and certainly other factors are involved. Experience in planning and operation of the inservice program has helped administrators recognize staff needs and find ways of meeting them. In a number of divisions and bureaus there has been improvement of personnel practices including planned orientation of new employees within the division or bureau, regularly scheduled staff meetings, committee work, and social activities. The department has established a canteen for employees in San Francisco, a simple thing in itself but an action that has done much to promote staff friendships and give employees a feeling of belongingness. There is a movement coming from both administrators and rank and file employees to form an employees' association. Most important has been the provision by administrators of increased opportunity for the staff to participate in planning, in solving problems, and in formulating policies.

The changes in administrative policies which have been mentioned would perhaps have evolved in any case; it is believed, however, that the experience of administrators in thinking through staff needs and in planning and participating in the inservice program has hastened the process of evolution.

Popular Magazine Discovers Local Health Units

Collier's Weekly for January 22 will have an article discussing the need for at least basic minimum local health services to cover the entire nation. Its dramatic title is "The Shame of Our Local Health Departments."

Public Health Degrees and Certificates Granted in the United States and Canada during the Academic Year, 1947-1948

The Committee on Professional Education for the 15th consecutive year presents its annual report of Public Health Degrees and Certificates Granted. Because of the special concern which the Engineering Project has had in recruitment and training of engineers for public health services, the material on students and degrees in sanitary or public health engineering is more complete for the academic year 1947–1948, than it has been in earlier years. This should be borne in mind in studying the figures.

In addition, the current report includes the findings of a special study made of undergraduate students and degrees in sanitary engineering.

As has been the practice for the past two years, summary tables only are included in this report. More detailed tabulations such as have been prepared in previous years are available in mimeograph form on request from the office of the Association. In the 5 year tables, certain minor corrections have been made in figures for 1946–1947, following further clarification by administrative officers of some of the schools.

The present report, as formerly, is based on questionnaires submitted by the administrative officers of the schools training graduate students. Their replies have been subjected to statistical review only. The tabulations are shown for graduate students in public health, public health or sanitary engineering, and public health nursing. The first two groups include only Master's degrees, or their equivalent, or higher academic degrees; the last mentioned includes students receiving Baccalaureate degrees or certificates, or equivalent, in public health nursing. The National Organization for Public Health Nursing has prepared the material on public health nursing students and degrees and given permission to include the data as a part of this report.

The report is based on replies received from three groups of schools; those 16 giving public health degrees, including the 10 schools of public health accredited through the A.P.H.A. accreditation program; from 41 universities offering graduate degrees in public health engineering or sanitary engineering; and, finally, from schools with 37 approved programs of study in public health nursing or approved basic curricula. A number of schools, it will be understood, are in more than one category, that is, some of the universities gave public health degrees, public health engineering degrees, and nursing degrees or certificates.

ENROLLMENT TRENDS

The figures for the current year indicate a slowing up of the increases that have appeared in previous post-war years. The total number enrolled in public health courses increased slightly. Engineering student enrollments as reported also show an increase of more than 10 per cent, but this increase is due almost entirely to the larger number of schools reporting.

As to degrees granted, there has been a slight drop in public health degrees and an increase of about one-fifth in public health engineering degrees after

making allowance for additional schools reporting. Degrees and certificates for graduate nurses were reported from all approved programs of study for the first time in recent years. After allowing for schools previously unreported there has been an increase of about one-sixth in the number of graduate degrees and certificates granted through approved programs over the previous year.

The proportion of physicians among those enrolled in public health courses has been about 40 per cent of the total enrollment during the current year and the two years previous, in absolute numbers 244, 298, and 302 in these years. For the eight years during which information on professional background of students in graduate public health courses has been secured, nearly 1,900 physicians have been enrolled representing 42 per cent of total enrollment. In the first two of those years physicians made up more than half of the graduate students; in the academic year 1943–1944 they were only one-third. Health educators represent the next largest group, less than 20 per cent in 1947–1948, a substantial reduction from the 29 per cent of the total two years ago. Laboratory workers have increased from 33 in 1944–1945 to 89 in 1947–1948, from 7 to 12 per cent of the total enrollment.

With the expanding concept of public health, a new group has come into public health schools in the last two years in appreciable numbers. The number of hospital administrators, enrolled almost exclusively in the special courses given at Columbia University and the University of Minnesota, numbered 49 last year and 94 in the current academic year, in which they constitute nearly 13 per cent of the total enrollment in graduate public health courses.

NUMBER OF DEGREES GRANTED

With the exception of Toronto University and the University of Puerto Rico, where different traditions of nomenclature prevail, the number of separate degrees offered for public health students has now been reduced to 8, including Master of Hospital Administration. The most common degrees offered are Master of Public Health by 10 schools, and Doctor of Public Health by 7.

There has been less consolidation of degrees in public health engineering or sanitary engineering. Originally the 41 schools reported a total of 25 different degrees. In analyzing the material it has been assumed, however, that the distinction between Master of Science, Sanitary Engineering; and Master of Science in Sanitary Engineering is a distinction without a difference. The same assumption has been made for Master of Science, Civil Engineering, and Master of Science in Civil Engineering; and for Master of Science, Civil Engineering (Sanitary Option), and Master of Science, Civil Engineering, (Sanitary Engineering Option). Other probably reasonable consolidations have

TABLE 1—ENROLLMENT IN GRADUATE PUBLIC HEALTH COURSES AND STUDENTS RECEIVING GRADUATE DEGREES OR CERTIFICATES, FIVE YEAR SUMMARY, 1944–1948

Academic Year	Enrollment			Students Receiving Degrees and Certificates			
	Total	Public Health	Public Health Engineering	Total	Public Health	Public Health Engineering	Public Health Nursing
Total	3,786	2,933	853	8,277	1,894	448	5,935
1943–1944	460	396	64	1,119	207	35	877
1944–1945	540	462	78	1,204	270	38	896
1945–1946	730	607	123	1,468	353	63	1,052
1946–1947	999	724	275	2,078	536	133	1,409
1947–1948	1,057	744	313	2,408	528	179	1,701

TABLE 2—NUMBER OF GRADUATE PUBLIC HEALTH DEGREES OR CERTIFICATES GRANTED, FIVE YEAR SUMMARY, 1944–1948

Degree or Certificate	*Total*	*1943–44*	*1944–45*	*1945–46*	*1946–47*	*1947–48*
Total	8,277	1,119	1,204	1,468	2,078	2,408
Doctor of Public Health	38	10	8	3	6	11
Doctor of Science	18	3	...	3	4	8
Doctor of Philosophy	18	3	4	4	3	4
Master of Public Health	1,218	101	140	216	361	400
Master of Science	301	29	17	31	132	92
Master of Science, Public Health	235	45	68	56	48	18
Master of Science, Public Health Engineering	10	4	...	4	2	...
Master of Science, Sanitary Engineering	74	1	...	16	22	35
Master of Science, Civil Engineering	24	...	1	1	10	12
Master of Civil Engineering	25	5	1	1	4	14
Master of Arts in Science	12	...	...	3	...	9
Master of Sanitary Science	56	...	18	18	20	...
Master's Degree (Nurses)	512	43	32	136	175	126
Diploma, Public Health	127	18	22	34	31	22
Diploma, Veterinary Public Health	21	...	6	4	2	9
Baccalaureate Degree (Nurses)	2,807	361	392	429	611	1,014
Certificate, Public Health	14	5	2	4	2	1
Certificate, Medical Technology	71	12	14	12	13	20
Certificate, Public Health Nursing	2,614	472	472	486	623	561
Other	72	7	7	7	9	52 [a]

[a] Includes a number of new degrees not hitherto reported—Master of Science, Engineering 19, Master of Hospital Administration 11, Master of Health Education 8

not been made in the current tabulations in the hope that the display of minute variations may hasten the process of reducing the nomenclature of public health engineering degrees to a common denominator.

Of the 528 students receiving graduate public health degrees, almost 70 per cent received the M.P.H. degree, or its Canadian equivalent, Diploma in Public Health; 44 persons, largely those in Columbia University's Hospital Administration course, received the M.S. degree; 20 persons, the Certificate of Medical Technology granted by the University of Puerto Rico; no other degree was granted to as many as 20 persons.

Among the sanitary engineering group of 179, only 3 degrees were given to more than 20 persons; M.S., or its Canadian equivalent M.A.Sc., to 57; M.S.S.E. (or M.S. in S.E.) to 34; and M.P.H. to 34. The remaining 54 persons received 12 different degrees.

Among the 1,701 students receiving public health nursing degrees, 126—about 7 per cent—received the Master's degree, a considerable drop in the proportion of these degrees over the previous year. Those receiving certificates also dropped from 42 to 33 per cent of the total. Conversely, those receiving the Bachelor's degree increased from 43 to 60 per cent of the total.

It is of further interest that an additional school, the University of Washington, was accredited jointly by the N.O.P.H.N. and the N.L.N.E. for the basic professional curriculum, qualifying the graduates for staff level positions in public health agencies that provide direct nursing supervision. Due largely to the additional school, graduates of such programs increased 40 per cent. One school in this group granted one-half of all the Master's degrees reported for all schools during the current academic year.

INCREASED TRAINING FACILITIES NEEDED

It is generally recognized that many of the students in graduate courses, especially medical administrators, are receiving further training for public health positions they already hold. Nor do the

existing schools have facilities for giving graduate training to a substantially larger number of students than they already have.

By 1950 it is expected that the School of Public Health of the University of Pittsburgh will be ready to train 50 or more graduate students annually. The Committee on Professional Education will study plans for one or more additional schools of public health located in strategic areas.

UNDERGRADUATE TRAINING IN ENVIRONMENTAL SANITATION

In order to have more definite information than has hitherto been available as to facilities for the training of persons who could fill positions in environmental sanitation in state and local health departments, a special study of baccalaureate degrees in sanitary engineering and sanitation has been made for the committee by the American Public Health Association Engineering Section Project. Recruitment of environmental sanitation personnel must start at the undergraduate level if present shortages are ever to be overcome. Furthermore, although it is recommended that sanitary engineers, most particularly directors of divisions, should have training beyond the baccalaureate level, presently many positions are filled by engineers and sanitarians without this additional training.

Questionnaires asking for information on baccalaureate degrees offered and granted and students enrolled were sent to 69 universities and colleges, the majority of whose civil or sanitary engineering curricula have been accredited by the Engineers' Council for Professional Development, a conference of national engineering bodies. Replies were received from 56, or well over three-fourths of the total. Of these, 33 reported that baccalaureate degrees were offered to students preparing for sanitary and public health engineering.

A like number of schools received questionnaires concerning sanitarian training leading to a baccalaureate degree. Of 51 replying, 7 reported offering degrees for students preparing for sanitation work on a non-engineering basis.

In reporting the number of students enrolled, the schools were asked to report only upper classmen, since academic work in the earlier college years is more general than specialized.

In analyzing the material it has been assumed that B.S. (Civil Engineering) reported offered by one school and granted to 12 students is the same degree as B.S. in Civil Engineering. Other consolidations could undoubtedly be made without doing violence to existing facts.

The 33 schools reporting sanitary engineering degrees, offered a total of 11 separate baccalaureate engineering degrees, 7 of them B.S. or one of its variants. The 6 sanitation degrees offered by the 7 schools were all B.S. or its variations.

The schools reported 352 sanitary engineering students and 67 sanitation students enrolled for baccalaureate degrees. Among the former, the largest number of students, 46, was reported by Manhattan College; only 5 other schools had 20 or more students, and 16, fewer than 10 students.

Nearly 40 per cent of those enrolled. 138 students, received public health or sanitary engineering degrees. Of the 22 schools graduating students, 12 gave degrees to fewer than 5 students, and only 6 to 10 or more. Of the 138 degrees granted, 65 were the B.S.C.E. degree (written B.S.(C.E.) or B.S. in C.E., for 50 students in 9 schools and B.S. in C.E. (Sanitary Engineering) for 15 students in 3 schools); 36 students received the B.C.E. degree (10 of them in one school with Sanitary Option as a part of the degree). No school reported offering more than one degree in the

sanitary engineering field. Thus it would seem that the desired consolidation of degree titles in the undergraduate field might be more readily accomplished than in the graduate area.

Six different degrees were offered by the 7 schools preparing students for sanitation work on a non-engineering basis, and again no school offered more than one degree. Of the 6 degrees offered, only 3 were granted in 1947–1948, B.S. to 19 students, B.S. in Sanitary Science, and B.S. in Bacteriology and Public Health, each to 4 students.

Perhaps the most discouraging fact revealed by this exploratory study is the limited source of students upon which the schools training graduates of public health engineering can draw. Nearly as many graduate as undergraduate sanitary engineering students were enrolled and more graduate than undergraduate degrees granted. It would appear, therefore, that the students doing graduate work are being drawn from other occupations, although one must not overlook the possible lingering effects of the war period dislocations. Whatever may be their influence, however, the necessity for active recruitment among undergraduates and even among high school students is unmistakable.

The questionnaire on undergraduate courses included an inquiry about the extent of vocational guidance given to underclassmen. Of 45 universities reporting, 36 reported vocational guidance and 9 did not give guidance. In 30 instances, these students were advised of the educational requirements for sanitary engineering and in 9 they were not. Forty of the universities gave underclassmen information on career possibilities open to the sanitary engineer, while 4 did not. Several universities reported that apparently career opportunities were not being sufficiently emphasized to attract students to sanitary engineering courses. Although the significance of this inquiry is limited, it again points to the fact that neither the engineering nor the public health professions are giving high school and early college students sufficient information about the rewarding possibilities of a sanitary engineering career.

W. P. SHEPARD, M.D., *Chairman*

NOTE: For previous reports see Vol. 38, p. 86; Vol. 37, p. 67; Vol. 35, p. 1311; Vol. 34, p. 1264; Vol. 33, p. 1430; Vol. 32, p. 1360; Vol. 31, p. 1306; Vol. 30, p. 1456; Vol. 29, p. 1338; Vol. 28, p. 863; Vol. 27, p. 1267; Vol. 26, p. 819; Vol. 25, p. 341; Vol. 23, p. 1124.

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1949–1959

NOW that the election is over and the smoke of conflict has begun to clear away it is possible once more to consider public issues on their merits and without reference to their effect on the fate of candidates or parties. To the readers of this *Journal,* the future of public health in these United States is a public issue of paramount importance; and it is fitting that we should give serious attention to a document published last September and consider its significance for a nation which has passed through the throes of a Presidential conflict, and should now be ready to discard partisanship and prejudice and plan for united efforts to promote the welfare of the American people.

We refer, of course to the report of Oscar R. Ewing, Federal Security Administrator entitled "The Nation's Health: A Ten Year Program." This report is based, for the most part, on the deliberations and unanimous conclusions of the National Health Assembly of last May; and has already been reviewed in our "News from the Field"[1]; in which review the nine major health goals outlined in the report are listed in some detail. These goals are of three general types. There is first, essential need for increased personnel and facilities. Mr. Ewing estimates that we shall require by 1960, 600,000 more hospital beds than we now have; and that the output of our medical schools must be increased by 40 per cent, and that of our dental schools and nursing schools by 50 per cent, if we are to reach minimum standards by that year. In the field of public health administration, complete coverage of all areas with basically equipped health units is, of course, held to be essential. The report, in the second place, emphasizes the need for expanding health services of all kinds to include competent challenges to problems now unmet, such as complete programs for child health, for mental health, and for care and rehabilitation of chronic disease. For attainment of the ends outlined above, it is suggested that our governmental expenditure for health (federal, state, and local) be increased from its 1947 figure of slightly under $2 billion to slightly over $4 billion; and indicates a saving of $27 billion a year from possible resulting economies in life and health.

Mr. Ewing's third major objective is to eliminate the economic barriers which now prevent the outstanding potentialities of American medicine from reaching in full measure the groups which are most in need of them. He emphasizes the fact—so familiar but so commonly ignored—that (in 1946) 28 per cent of our families had family incomes below $2,000. He believes that we must "assure that every individual without regard to his economic status has full access to adequate medical services for the prevention of illness, the care and relief of sickness and the promotion of a high level of physical and mental health."

This objective obviously implies—in addition to provision of standard preventive service—that some way must be found for securing those individual medical services for which the family of modest income cannot possibly budget, and for providing such services on a basis which preserves the self-respect of the household without labelling them as paupers.

To attain this end, it is obvious that some form of orderly prepayment is essential. Mr. Ewing quotes with approval the conclusion of the National Health Assembly that "The principle of contributory health insurance should be the basic method of financing medical care for the large majority of the American people, in order to remove the burden of unpredictable sickness costs, abolish the economic barrier to adequate medical services and avoid the indignities of a 'means test.'" Many plans of this kind are operating on a voluntary basis; but Mr. Ewing points out that as a rule, the benefits which such plans offer are limited in scope; that the plans cover only a small proportion of the people; and that it is almost impossible that they could ever reach the lower half of the population, from an economic standpoint. He therefore, in this report, goes in this one respect, beyond the conclusions which the Health Assembly was able to reach with unanimity; and advocates a national health program of prepaid health insurance which will mobilize the total group-purchasing power of the people in the interest of all. The plan which Mr. Ewing proposes is a gradual and highly flexible one. It includes a preparatory "tooling up" period and the beginning of actual service only after three years, and then including at first, only such services as existing resources permit and with coverage as broad as may seem practicable at the time. Actual operation would, of course, be decentralized to the states; and complete freedom of professional personnel explicitly assured. The report analyzes various objections to such a program, the bogies of "socialization" and "compulsion," the question of adequacy of personnel to carry out the plan (a serious and important one), the cost of the program and its possible effects on quality of service (another most vital problem). We urge all thoughtful students to read these pages of the report.

Mr. Ewing points out that success in this—or any other—program will depend on community understanding and community support. The role of the federal government in health is to provide for leadership and coördination and to fill gaps which cannot be filled by state and local action. Therefore he makes the sound and fruitful suggestion that state and local health assemblies be called throughout the nation to follow the pattern of the highly successful National Health Assembly of last May. Such assemblies should form the best possible basis for local health planning and for intelligent support of whatever federal legislation is essential as a framework for state and local progress.

REFERENCE

1. *A.J.P.H.*, 38:1615 (Nov.), 1948.

"PUBLIC HEALTH REPORTS" FOR OCTOBER 8, 1948

THE weekly bulletin of the U. S. Public Health Service is, of course, a familiar and essential source of information to every student of public health. One particular issue which appeared last fall contained two articles of such significance as to deserve special notice.

One of these articles, by I. M. Moriyama, discusses the apparent increase in mortality from diabetes in the later decades of life which has occurred in recent years. Since Banting and Best discovered insulin in 1922, the diabetes death rate at ages over 64 years has more than doubled; and as Moriyama points out this is chiefly due to the system of automatic allocation of joint causes of death. When, for example, heart disease was reported by the physician as a primary cause of death with diabetes as a contributory cause, the system of priorities accepted by statistical offices credited the death to diabetes. As a result, the more effectively diabetes was controlled by insulin, the more diabetics would live to old age to die of heart disease; and the more rapidly the recorded death rate from diabetes would increase. In the present year, a new procedure adopted by the International Conference for the Sixth Decennial Revision of the *International Lists of Diseases and Causes of Death,* held in Paris last April, will go into force, placing more direct responsibility on the physician for determining the actual cause of death.[1] Our future statistics will show unfortunate breaks with past trends but they should be of far greater significance.

A second paper in this same issue of *Public Health Reports* is a well planned epidemiological study of the influence of a fly control program on diarrheal diseases by James Watt and D. R. Lindsay. In a district of the Rio Grande River Valley of Texas, the population was divided into two approximately similar and nearly equal areas. In the towns of Group A a vigorous program of fly control was initiated in April, 1946, and continued until August, 1947. In the areas of Group B such a program was initiated in September, 1947 (when it was discontinued in the towns of Group A), and continued to February, 1948. The index of fly prevalence in Group B ran continually above that of Group A until the shift in procedure. In both summers it reached a maximum seven times as high as that for Group A. When the fly control program was transferred to the Group B area, the lines crossed at once and for the late fall of 1947, flies in Group A areas were nearly ten times as numerous as in those of Group B. Parallel examination of stools in the two areas showed 1.9 per cent of stools yielding *Shigella* organisms in Group A while it was protected as compared with 4.2 per cent for Group B. After fly treatment was transferred to Group B, this area showed only 2.4 per cent of such infection as compared with 2.5 per cent for Group A. Attack rates of diarrheal diseases among children under 10 years of age showed exactly the same curve, with higher rates for Group B than for Group A so long as Group A was fly protected and a reversal of the situation when fly control was shifted to Group B. Finally, precisely the same relationship was shown with regard to reported deaths from diarrhea and dysentery in children. This is an unusually neat and adequate example of competent experimental field epidemiology.

Our fraternal congratulations to the Editor of *Public Health Reports* on this admirable issue.

REFERENCE

1. Fales, W. Thurber, and Moriyama, Iwao M. International Adoption of Principles of Morbidity and Mortality Classification. *A.J.P.H.*, page 31, this issue.

WHY IS AN ALCOHOLIC?

THE growing interest in alcoholism as a psychosomatic rather than a moralistic problem will be strengthened by a recent study from the University of Southern California. Dr. M. P. Manson has developed, after extensive preliminary study, a group of 72 questions designed to reveal certain significant differences in personality; and, in a final phase of the study, the response to these questions was recorded for 268 alcoholics and 303 nonalcoholics. The 2 groups revealed distinct and statistically significant differences with regard to seven personality characteristics, anxiety, depressive fluctuations, emotional sensitivity, feelings of resentment, failure to complete social objectives, feelings of aloneness, and poor interpersonal relationships. The alcoholics showed markedly higher scores on these points than the nonalcoholics, and taking a given total score as a dividing line, 4 out of 5 of the total group of 571 persons would be correctly classified as either alcoholic or nonalcoholics by the test above.

The study seems a competent and promising one, and deserves serious attention and repetition. We must leave to the psychologist the question as to how far emotional problems lead to excessive drinking, and how far the reverse relation may obtain; but the fundamental nature of the personality traits revealed would seem to indicate the former relationship.

REFERENCE

1. Manson, M. P. A Psychometric Differentiation of Alcoholics from Nonalcoholics. *Quart. J. Stud. on Alcohol,* 9:175 (Sept.), 1948.

Clearing House on Public Health Salary Information

1948 STATE SALARY STUDY

The second annual study of salaries of public health personnel in state health departments was published in October, 1948, by the Public Health Service in coöperation with the Association of State and Territorial Health Officers and the American Public Health Association. It is based on reports from the 48 states reporting nearly 6,000 professional workers and representing all the professional groups usually employed in state health departments.

The salary figures are for August, 1948, nine months later than the time of the first study. In that period median annual salaries had increased by $400 for medical and sanitation (non-engineering) personnel, by $200 for sanitary engineers, laboratory personnel, supervisory and consultant nurses, and nutritionists, and by $100 for staff level public health nurses and graduate registered nurses.

Although 4 state health officers were receiving less than $6,000, more than one-fourth were receiving $10,000 or more. The 14 states paying $10,000 or more are northern, southern, eastern, western, industrial and agricultural, and both thickly and sparsely settled. One state health officer serving a population of less than a million received the same salary as one serving nearly 10 million.

The median salary of state health officers was $7,500 paid by 5 states. Thirteen state health administrators received less than $7,000. The average annual salary was $8,247, an increase of $622 over that of November, 1947.

Among the directors of specialized medical services, the highest annual salary reported was $12,000 for a director of tuberculosis control activities. Next was a state director of local health service at $11,000. The salary of no other medical specialty director was as much as $10,000. The lowest salary paid in this category was $4,500 in 2 instances. Average salaries for the various categories of workers are shown in the Table A below. It will be noted that of four groups, salaries of directors of local health services had the highest average, those of directors of maternal and child health services the lowest.

TABLE A

Increase in Average Salaries for Program Directors

Position	*November, 1947*	*August, 1948*	
		Amount	*Percentage Increase*
Health Officers	$7,625	$8,247	8.2
Directors of Local Health Services	6,695	7,354	9.8
Directors of Maternal and Child Health Services	6,264	6,829	9.0
Directors of Venereal Disease Control Activities	6,407	7,017	9.5
Directors of Tuberculosis Control	6,643	7,311	10.0
Directors of Public Health Dental Services	5,714	6,211	8.7
Directors of Sanitary Engineering	6,117	6,528	6.7
Directors of Laboratory Services	6,095	6,394	4.9
Directors of Public Health Nursing	4,414	4,722	7.0
Directors of Vital Statistics	4,546	4,802	5.6

Average salary increases of medical administrators of specialized health activities during the nine month period ranged from 9 to 10 per cent while those of health officers averaged 8 per cent. The smallest increase of 5 per cent was found among directors of laboratory services and the lowest salaries for directors of public health nursing.

A study of the details of salary levels in the various regions of the country as divided into U. S. Public Health Service regions indicates that salary levels among the various groups in the public health profession have no consistent relation to each other. The Pacific states, for example, which have the highest median salary range for medical personnel, have the lowest for sanitary engineers. Southern states reported the highest median health officer salaries but the lowest for nursing and sanitation personnel.

It is obvious that a mosaic of factors determines salary levels for various groups in each state. An analysis of that mosaic into its components and the discarding of irrelevant factors is the goal of a further study in prospect, the purpose of which is to find common denominators for the various job titles.

The current study is available in limited quantities from the American Public Health Association. It is a valuable tool for administrators who are recruiting personnel. However, it should be borne in mind that these are raw data and must be studied in relation to the region of the country, the state's program, the going professional salary scale, and many other items.

COST OF LIVING FIGURES

The *United States Municipal News,* published by the U. S. Conference of Mayors, included in its December 1, *1948, issue (15:23)* a summary of cost of living figures, analyzed into components such as food, clothing, etc., for every year beginning with 1939, and monthly for September, 1947–September, 1948. This shows that the cost of living has almost doubled since 1939, 40 per cent of the increase having taken place since August, 1947. Food and clothing show the largest increases, rent the smallest. The neat little compact table of these figures is a handy gadget to have in reserve when discussing recruitment matters with county commissioners or state legislators. The figures, of course, are those of the U. S. Bureau of Labor Statistics. *United States Municipal News,* 730 Jackson Place, Washington, D. C.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Society as the Patient—*By Lawrence K. Frank. New Brunswick, N. J.: Rutgers University Press,* 1948. 395 pp. Price, $5.00.

Lawrence Frank has brought together 30 of his articles published in professional journals over a period of 25 years. They range over the fields of economics, social psychology, education, the arts and the sciences. A critical reading of these essays furnishes an illuminating picture of the ideas and proposals of a man who is considered one of our leading social philosophers. Public health workers will be interested particularly in his concepts of the "etiology," "diagnosis," and "treatment" of our social problems—especially mental health.

He has adopted the concept of a sick society in need of treatment in order to simplify (or oversimplify) the discussion of a multiplicity of social problems each demanding special attention. He arrives at the rather startling "diagnosis"—"That we can view all of them as different symptoms of the same disease." The book abounds in such bold generalizations that it is provocative as well as profitable reading.

Two of the essays furnish keys to the author's diagnosis of our social ills—"Society as the Patient" and "Dilemma of Leadership." These essays present a gloomy, melancholy picture of our culture. It requires optimism not to be convinced that the "patient" (society) is not "sick unto death," and that we lack any leaders who are not driven by their frustrations, compulsions, and sense of guilt to seek personality fulfillment through exploitation of society. We disagree on both counts—even though we accept the accuracy of many of the examples cited. The difference of opinion lies in the breadth of the generalizations derived from them. For the author so classifies the majority of leaders in politics, business, industry, finance, the professions, education, and religion. He absolves them from personal guilt and places the responsibility upon our disintegrating culture.

Among the important determining factors (according to Frank) in this cultural disintegration are the competitive system and the distorted personalities created by the ineptness of our practices for socializing the child in the home and the school. The "treatment" prescribed is the reconstruction of our culture and the creation of a new design for living.

The essays of greatest practical usefulness to public health workers are those concerned with education and mental hygiene.

The reader may be surprised to learn that Frank chooses the psychiatrist to be the best *social diagnostician,* the artist as the outstanding *social teacher,* and the historian as a valuable *social therapist.* One may disagree definitely with some of the views expressed but they compel one to re-appraise both thinking and practice. This is a wholesome exercise if we follow the advice of Lyman Bryson in his foreword to "treat all of Mr. Frank's materials with rigorous caution." WALTER H. BROWN

Psychobiology and Psychiatry—*By Wendell Muncie. (2nd ed.) St. Louis: Mosby,* 1948. 620 pp. Price, $9.00.

The second edition of Dr. Muncie's book is, like the first, intended primarily for the use of medical students. It has three main divisions: Psychobi-

ology—the study of normal behavior; psychiatry and pathology — abnormal behavior; and treatment. The author omits child psychiatry, but otherwise the volume covers the psychobiology and psychiatry courses given at The Johns Hopkins Medical School. Dr. Muncie has undertaken to present the teachings of Adolf Meyer, with some modification based on his own experience in private practice.

The task of presenting psychobiologic psychiatry is difficult because this school of thought offers no systematization to explain everything comfortably. Self-characterized as "eclectic and pragmatic," it lacks the order and appeal of the Freudian school, for example. The presentation of dynamic concepts of disease, its diagnosis, prognosis and treatment, call for a high order of teaching and writing. That this book is difficult to understand is only partly attributable to the difficulty of the concepts, however. It is true both of Dr. Muncie and Dr. Meyer that in the translation of their thoughts and teachings into writing, a lack of simplicity makes it hard for us to gain the understanding that undoubtedly would come from personal contact with these men.

Part I, psychobiology, is written around an outline and guide for the student's study of his own personality. This would seem to be an effective means of capturing and holding the interest of the student, but much of the good effect is lost through the author's polysyllabic, professorial style. This section would gain in interest, too, if more information were given the reader not associated with The John Hopkins Medical School as to how the student's personality study is presented and evaluated.

The 377 page section on abnormal behavior, Part II, begins with an explanation and defense of psychobiologic psychiatry, includes an instructive chapter on examination methods, and systematically covers the field of abnormal behavior. The various disorders are well illustrated by case records. It is regrettable that Dr. Muncie has made a sharp separation between disease and its treatment. The section on treatment, Part III, is a helpful survey of general methods and the management of "specific" disorders, and deserves a separate place in a book such as this. However, excellent teaching opportunities have been lost by failure to relate treatment more closely to pathology. The effect on the reader is an impression of an almost nihilistic theory of treatment in view of the doctrine of psychobiologic psychiatry, which places emphasis on meeting the problem at hand with whatever method seems most likely to produce good results, and which does not rely on any special scheme of explanation or treatment.

In general this is a useful book, bringing a good deal of common sense and a reasoned perspective to what is still a too vague field. It should find its greatest use and popularity in undergraduate medical teaching.

PAUL A. LEMBCKE

Diagnostic Bacteriology—*By Isabelle Gilbert Schaub and M. Kathleen Foley. (3rd ed.) St. Louis: Mosby,* 1947. 532 pp. Price, $4.50.

This is a revised and enlarged edition of a text previously titled *Methods for Diagnostic Bacteriology,* originally compiled as a manual of methods for bacteriologists in diagnostic and autopsy laboratories of The Johns Hopkins Hospital and School of Medicine.

The first chapter presents technics for the use of agar plate media for the isolation and purification of cultures, and includes a section on the rapid paper disc method for determining susceptibility to penicillin and streptomycin. A long chapter then outlines procedures of choice for culturing specific pathogenic or autopsy materials or in

examining such materials for specific organisms. A chapter is devoted to detailed descriptions of the colony characteristics of pathogenic organisms with special emphasis on blood agar plate cultures. Next is a series of chapters giving the biological characteristics useful for the identification of pathogenic organisms with a series of schematic charts giving the differential characteristics within the various groups of bacteria. The unusual amount of space devoted to agar plates and colonial characteristics is based on the belief that a careful study of agar plates in connection with a knowledge of the source of the material and the organisms most likely to be found at such a site will frequently enable the medical bacteriologist to identify tentatively pathogenic organisms within 24 to 48 hours.

Part II of the manual deals with serological methods, detailing technics for the identification of cultures by agglutination and precipitin tests and for the examination of patients' sera by agglutination tests. No mention is made of the use of complement-fixation tests for these purposes. The final Part III gives formulae for media, stains and reagents, and directions for their use.

The text is well organized, with cross-references clearly stated, and with page numbers and references to original literature inserted in the body of the text. The fact that it is a methods manual is emphasized by every other page being left blank.

Although this manual is primarily for the hospital laboratory, its approach and methods are equally applicable to the diagnostic division of the public health laboratory. E. K. KLINE

The Abnormal Personality—*By Robert W. White. New York: Ronald Press*, 1948. 613 pp. Price, $5.00.

Among other chapters, this volume contains the following: Origins of Abnormal Psychology; Examples of Disordered Personalities; the Development of Personality; Fantasy, Dreams, and Hypnotic Behavior; Anxiety and Defense; Neurotic Conflict; Psychotherapy; Delinquent Behavior; Psychosomatic Diseases; Abnormal Conditions in the Brain; the Psychoses; Schizophrenia, etc.

The author of this book wants it to be known as a textbook, and a very useful one it is. Not only the student of psychology will benefit greatly from perusing it. but also the general practitioner of medicine who has not specialized in psychiatry. Indeed, it should be of great help to the public health officer and to any intelligent and cultured layman who wishes to become acquainted with the anomalies of human thinking. It is clearly, simply, and beautifully written and brings the subject up to date. Its introduction on the development of psychiatry is splendid. The book describes the abnormal personality from all angles. The author deserves particular credit for not having forgotten, as others so often do, the social and economic viewpoint both in the causation of the abnormalities and in the frequent hints as to the remedial measures. The examples from life, either original or quoted from the literature, are well selected and perfectly illustrate the theoretical text. The one dealing with the criminal boy who, trapped in delinquency through his home life and his later relationships, is pathetic and absolutely true. The last section, "The Problem for Society," will be particularly interesting to anyone who thinks along broad lines: "The problem of disordered personal reactions is one that cannot be solved without reference to the society in which they occur," is its first sentence.

The reviewer feels that some descriptions, like that of hypnosis, are unnecessarily elaborate and misses the following: a chapter on the normal personality or perhaps a good explanation as to

what personality is; also, although not strictly related to the topic, one regarding mental deficiency; a consideration of the lighter, the very light transition cases between mental health and mental disease; and finally, something about abnormal group or mob abnormal psychology. Nor can we fully agree with the definition that the "distinguishing mark of psychosis is an almost complete loss of contact with the surrounding world," which is exaggerated. And again, we believe that the author is wrong in trying to replace the expression "psychoneurosis" by "neurosis," these being really two different terms.

B. LIBER

Sanitation for Food Handlers and Sellers—*By Berl Benmeyr. Los Angeles: The American Institute of Sanitary Science,* 1948. 126 pp. 123 illus. Price, $4.95.

Instruction of foodhandlers, carried out by departments of health and departments of education during the past 10 years have been effective in sensitizing these much criticised and not easily forgotten employees to the careful and safe methods of storing, preparing, and serving of food. The instruction has varied from short talks or incidental information, to study groups, clinics, and short courses. The inevitable outgrowth of these various methods of foodhandlers' training has been the home study course devised by Berl Benmeyr in this paperbound booklet, which is amply illustrated with cartoons and intended primarily for restaurant owners, operators, and the employed foodhandlers.

The book is divided into four parts, each part followed by a series of questions of the true and false variety. The text is written so that it can be understood by the average porter, dishwasher, chef, waitress, or manager and proprietor. In many instances the author minces no words. Sections are devoted to the prevention of food spoilage and food poisoning, dishwashing, personal hygiene, lavatory and hand washing facilities, equipment construction, how to make friends and influence the health inspectors, and other worth while subjects.

For those health officers who desire to start foodhandling courses or who want to change their present procedures of instruction, the booklet is recommended. For the proprietor of the restaurant, tavern, drive-in, lunch room or similar establishment who wants an easy way to instruct his employees in correct sanitary procedures, the booklet is also recommended.

The paper binding, 8½" x 10¾" size, and lack of a table of contents and index do not enhance its use.

The author has to some extent pointed the information to West Coast foodhandlers and has limited his instructions to restaurant employees. There is a need for a book of this sort for use by all types of foodhandlers, not only those in a portion of the food industry.

FERDINAND A. KORFF

Motivation in Health Education, Report of the Annual Health Education Conference of the New York Academy of Medicine, 1947. *New York: Columbia University Press,* 1948. 53 pp. Price, $1.00.

As Dr. Donald B. Armstrong states in the foreword, "The theme of this small volume embraces one of the most important problems in education. How can the educator make his instruction effective in the behavior of those whom he teaches?"

This volume consists of four provocative discussions by outstanding leaders in health education, psychiatry, and anthropology. The subjects discussed include The Problem of Motivation in Health Education, by Dr. Iago Galdston; The Changing Patterns of Motivation, by Dr. W. W. Bauer; Myths

and Resistances in Health Education, by Dr. Lawrence S. Kubie; and Positive Motivations in Health Education, by Dr. Margaret Mead.

This compact volume will appeal to the reader as a stimulant toward further study and exploration of the problem of motivation in health education.

A. HELEN MARTIKAINEN

The Rockefeller Foundation — A Review for 1947—*By Raymond B. Fosdick. New York: The Rockefeller Foundation,* 1948. 64 pp. Free on request.

This is a masterful review of an outstanding philanthropy during a critical year. It recounts the expenditure of more than 23 million dollars during 1947, which sum exceeded the Foundation's income from investments by 13 million dollars. Included in these appropriations are one of 10 million dollars for the China Medical Board and one of 3 million for social sciences (both of them exceeding the 2¼ million appropriated for public health and 1½ million for the medical sciences).

Those familiar with President Fosdick's style will want to read the text itself which is one of the best oriented statements of our world condition known to the reviewer. "The issues of our time and of human destiny," says Dr. Fosdick, "will be determined, not at the physical, but at the ethical and social level."

Dr. Fosdick uses the activities of the World Health Organization as a pertinent illustration of how medicine and health overpass national boundaries. "Public health work carries no threat to anybody, anywhere. Cancer and scarlet fever have no political ideology . . . the principles of sanitary engineering do not bear a Russian or an American label." Dr. Fosdick believes that the present is one of the supreme moments of challenge, in which the character of our response determines the chances of survival, and he proceeds to illustrate how the Rockefeller Foundation used its funds and its experience for the benefit of mankind throughout the world. This is highly recommended reading. REGINALD M. ATWATER

Health in Schools — Twentieth Yearbook. *(5th ptg.) Washington, D.C.: American Association of School Administrators,* 1948. 400 pp. Price, $1.50.

First issued in 1942 and now in its fifth printing, this *Yearbook* is meeting a real need. This is an important publication, especially since it is an official document from the American Association of School Administrators. Official and voluntary health agencies will find much of interest in this book. The official point of view of school administrators regarding school health is outlined in considerable detail. Emphasis is placed upon development of a school health program which benefits all children and utilizes all the resources within the community.

Of particular interest to health officers and school administrators alike is the point of view expressed on page 300:

> In the field of education the school cannot delegate its responsibility. Society is demanding that its activities be extended to groups both younger and older than the traditional school-age groups. The health department concerns itself with the health education of another part of the general public. For the health department to say that everything that has to do with health must be administered by it, and for the school system to say that all education in the community must be administered by it, would be equally absurd. On the other hand, the health department must be concerned with the professional quality of health services carried out in the schools, and the school system must be concerned with the educational outcomes of those same services no matter which agency employs the personnel.

Written six years ago, some of the references, especially those relating to federal agencies, are out of date. However, the basic philosophy and the pro-

cedures described in the book are sound and are fundamental to the development of good school health programs. Everyone interested in the health of school age children is urged to study this *Yearbook.* S. S. LIFSON

Safety for the Household. *U. S. Department of Commerce, National Bureau of Standards, Circular 463. Washington, D. C.: Gov. Ptg. Office,* 1948. 190 pp. Price, $.75.

Unique in being the most complete work yet published on home safety, this handbook fulfils a need for an authentic text.

Presented on the academic level in a style readable for the average householder as well as for the student, this book can serve as a guide for the use of public health nurses, family social workers, and others who are in a position to observe family practices and the environment of the home.

Contents of the book are divided into such classifications as Chemical Hazards, Electrical Hazards, Fire Hazards, Gas Hazards, Lightning, Mechanical Hazards, Yards and Gardens, Suggestions for Building a Home. The introduction gives a measure of the problem and deals with the organized movement, and a list of sources for materials. A check list of 44 questions is included.

In their introduction the authors call attention to their aim in the book, which is not to cause undue anxiety but rather to suggest means of removing causes for alarm. "Caution alone is not enough," state the authors, "because many of the dangers are not commonly known." New types of equipment for the home; miniature engines so widely used in toys; radio and television sets, and other devices which call for high voltage circuits, all place upon the modern householder a responsibility for extending his information about the prevention of accidents.

Paper covers in the shade of green used for safety, clear type, sketches and a good grade of paper add to the book's inviting appearance and readability.

ETHEL M. HENDRIKSEN

A Guide to the Selection and Training of Food Service Employees —*Prepared by a Committee of the Food Administration Section of the American Dietetic Association. Minneapolis: Burgess Publishing Company,* 1947. 47 pp. Price, $1.50.

This manual is a guide for dieticians and food service directors. It should be of particular interest to dieticians, because in part it clearly outlines the administrative position of the dietician as the supervisor of a food service program. The guide is divided into two parts; Part I, Preparation for a Training Program, and Part II, The Training Program.

The first part of the manual is expertly worked out and should be of value to any food manager. It outlines job requirements, methods to select employees, how to determine worker requirements, and includes sample illustrations of employment applications, interview forms and record forms.

Part II, The Training Program, includes methods of training, job relations, use of equipment, cooking methods, food standards, sanitation and a valuable reference list, including sources of visual aids.

Essentially this is a preliminary study of the problem of selection and training of food service employees. Its general form should accomplish the purpose for which it was written, as a basis for the development of a more detailed manual. It is, however, necessary to add that competent public health consultation should be sought by the American Dietetic Association, before attempting to construct a more detailed manual. For example, the authors have led the reviewer to believe that they are not familiar with the limitations of physi-

cal examinations. A few minor points on personal hygiene and sanitation are open to question. In general, however, this is an excellent guide for the purpose for which it was intended.

WALTER S. MANGOLD

The Chemical Composition of Foods—*By R. A. McCance and E. M. Widdowson. (2nd ed.) New York: Chemical Publishing Co.,* 1947. 156 pp. Price, $3.75.

The first edition appeared in 1939 and has had three reprintings, attesting to the value of the book and the necessity of a new edition. This book supplies data in the form of tables, two sets of which are included; the first lists composition per 100 grams, while the second tabulates compositions per ounce. The constituents listed include water, sugar, starch and dextrins, total nitrogen, protein, fat, available carbohydrates, and calories; sodium, potassium, calcium, magnesium, iron, copper, sulphur, phosphorus, and chlorine; acid-base balance expressed in cubic centimeters of one-tenth normal solution. About 540 British foods are analyzed. These include many cooked foods, the recipes for which are given. This is undoubtedly one of the most complete and up-to-date books on food composition that have come to the reviewer's attention. Data on vitamins are not included. The book is excellently indexed.

CARL R. FELLERS

Health Center Buildings—*By Harry E. Handley. New York: Commonwealth Fund,* 1948. 48 pp. illus. Price, 50 cents.

Community leaders interested in experience in rural health centers with regard to location, space requirements, architectural design and use of the building, will welcome the Commonwealth Fund's excellent report on these phases of its now completed program of health demonstrations.

The report, in brief form, deals with the general purposes and local control of the Fund centers, with design and equipment of the buildings and considerations in planning a health center.

The report gives a summary of information concerning each of the several centers and the area they serve. Tabulations give such information for each area as the number of square miles, population, the number of physicians, dentists, hospital beds, health department budgets, and per capita costs.

There is a drawing and floor plan for each building, together with a summary of the essential facts, such as births, deaths, principal sources of income, medical and hospital services available, special health problems, health department staff and cubage, construction costs, and area of the buildings.

An appendix to the report gives data obtained from questionnaires on the use of the first six Fund centers. This is of special interest since it presents practical criticisms and suggestions by health officers and others based on their administration and use of the buildings.

KENNETH D. WIDDEMER

Thyroid Enlargement and Other Changes Related to the Mineral Content of Drinking Water (with a note on Goitre Prophylaxis) Medical Research Council Memorandum No. 18—*By Margaret M. Murray, J. A. Ryle, Beatrice W. Simpson, and Dagmar C. Wilson. London, Eng.: His Majesty's Stationery Office,* 1948. 39 pp. Price, Ninepence net.

This painstaking and scientifically accurate study, carried out in the British Isles is a real contribution to our knowledge of food deficiencies.

The method of examination for thyroid enlargement and its classification is satisfactory for such clinical studies. However, instead of using such terms as "physiological goiter," it would be more accurate to teach that: There are

periods, such as puberty and rapid growth, pregnancy and gestation, or illness and malnutrition, when the "physiological demand" for thyroid hormone and iodine is greatly increased, thereby causing a depletion of thyroid hormone, and this condition produces the physiological changes in the gland of cellular-hyperplasia and glandular hypertrophy or goiter. This deficiency of thyroid hormone is always due to a lack of iodine, and if the gland is kept supplied with this fundamental food element it can meet all of the increased physiological demands without undergoing any of the above described histopathological changes or goiter.

The distribution of goiter throughout England, Ireland, and Scotland corroborates the findings in this country; that is, areas of endemic goiter are found fairly close to the sea, which is contrary to earlier teaching.

In this survey the food iodine in any community was measured solely from the amount of iodine in the water supply. However, in some sections of the world food iodine is obtained from natural salt and this would not be estimated when only the drinking water is studied. In other sections food iodine from sea foods will be an important factor when endemic goiter is less than would be predicted from the iodine content of the drinking water.

Again the age old question is raised: Does the hardness of the water (a high calcium content) cause goiter? A high calcium content in the drinking water may, in some way, interfere with the utilization of the iodine, but it does not change the fundamental concept that goiter is due to a deficiency of available iodine.

The careful analysis for fluorine in the drinking water and the presence of fluorosis in certain localities, is a valuable contribution. The geographical distribution of mottled enamel or fluorosis in the United States has been fairly well established. The best known areas of fluorosis do not correspond to the areas of endemic goiter. There is always some overlapping with an occasional goiter in areas of fluorosis. However, there is practically no known fluorosis in our most severe endemic goiter district. Public health officials, who have studied both fluorosis and endemic goiter, state that the excessive fluorine, which produces the mottling of the teeth does not affect the thyroid, nor is it a possible factor in the etiology of endemic goiter.

We agree with the authors that iodized salt is the most efficient and practical method of prophylaxis of endemic goiter.

O. P. KIMBALL

Widening Horizons in Medical Education 1945–1946—*A Report of the Joint Committee of the Association of American Medical Colleges and the American Association of Medical Social Workers. New York: Commonwealth Fund,* 1948. 228 pp. Price, $2.75.

Prerequisite to treating the "whole person" is an understanding of his social and environmental background. Unfortunately the present trends in medical practice lessen the opportunity for clinicians to observe these factors directly. As there is an increasing number of visits to offices, clinics, and hospitals, there is a corresponding decrease in house calls and personalized service. The medical student is apt to have even less insight into the problem for he may never have seen a patient in his own habitat.

To cope with the dilemma of adequate medical-social teaching, the Association of American Medical Colleges in 1941 appointed a committee which later collaborated with the American Association of Medical Social Workers. This joint committee was not so much concerned with the ultimate objectives in training medical students, nor with a definition of the segment to be fulfilled by the professional social worker, as it

was with a survey of the teaching done in this field by medical schools throughout the country. From their report it is evident that some schools have well integrated plans of teaching the medical-social aspects of illness, but one must conclude that the field is seriously neglected in the majority. Those charged with the responsibility of educating the pre-medical student, as well as those teaching medical students, should profit greatly from the studies of the committee and find their suggestions invaluable in planning an adequate curriculum.

WILLIAM W. STILES

Advances in Food Research. Vol. I—*Edited by E. M. Mrak and George F. Stewart. New York: Academic Press*, 1948. 459 pp. Price, $7.50.

This book consists of ten reviews, reports, and articles by a dozen different authorities on various aspects of nutrition, food technology, microbiology, biochemistry, and other important subjects in the food field. Included is material on the factors affecting the aging of beef, the vitamin content of canned foods, the physiological basis of voluntary food intake, dried whole eggs, the palatability of poultry, processed potatoes, the influence of climate and fertilizer practice on the vitamins and minerals in vegetables, the browning of fruit products, food preservatives, and the deesterification of high-polymer pectins.

It is interesting to note, for example, that the location and season in which plants are grown have a profound effect upon their content of ascorbic acid, and that the amount of available sunlight is the most significant factor in the development of vitamin C in many vegetables, although other factors play a part in the production of this vitamin, as well as of carotene. In the light of these facts, some of the data in existing vitamin tables may have to be reëvaluated and possibly revised.

The book is well printed and has a good index, and each review is well documented. It should prove of great value to nutritionists, food technologists, and all others who are interested in or concerned with food research.

JAMES A. TOBEY

Best's Safety Directory (of Safety, First Aid, Hygiene and Fire Protective Products)—*(2nd Annual Edition), 1948. New York: Alfred M. Best Company, Inc.*, 1948. 494 pp. Price, $5.00.

The volume consists of 8 pages of introduction, 415 pages of directory, a 53 page geographical breakdown of sales offices and distributors of products listed, a 16 page index to products listed, and a 2 page index to advertisers. The directory itself is subdivided into nine major sections: Fire Protection (57 pp.), Personal Protection (137 pp.), Personal Hygiene and Sanitation (33 pp.), Plant Maintenance and Sanitation (54 pp.), Above-Ground Protection (27 pp.), Liquid and Solid Materials Handling (24 pp.), Atmosphere Control (28 pp.), Machinery Guarding and Control (28 pp.), and Training and Warning Aids (27 pp.). These nine major sections are still further broken down into about six further subdivisions, such as (under the heading Personal Protection), Respiratory, Head, Eye and Face, Arm and Hand, Body and Leg Protection.

A typical subdivision, that on Eye and Face Protection, contains its own introductory page, 16 pages of item listings, 2 pages of "Recommendations for Eye and Face Protective Products" and 14 pages of product advertisements. Each item listing, such as that for "Goggle-Eyecup-Chemical" consists of a one paragraph description and the customary list of names and addresses of manufacturers of this type of goggle. Photographs illustrating items listed appear on almost every page.

The directory is well printed and bound. The text, listings and indices are adequate for the purpose indicated by the title of the directory.

ARTHUR C. STERN

American Rural Life—A Textbook in Sociology—*By David Edgar Lindstrom, New York: Ronald Press,* 1948. 385 pp. Price, $4.00.

Workers in practical programs of health or welfare sometimes avoid literature labeled "sociological" because it is often highly conceptual or theoretical, not geared to everyday, local problems. They will not be bored with Professor Lindstrom's book, however. For this is a "textbook in sociology" which, while built on a firm theoretical foundation, provides a vital, almost journalistic account of the immediate problems of rural life in America and the measures being taken or proposed to meet them.

The theoretical core of *American Rural Life* is essentially that, with industrialization, the quality of rural culture is deteriorating. This creates a serious problem for the whole nation, since, with present urban and rural birth rates, the cities depend for their survival on migration of young people from the country. To preserve the best social values in rural areas, it is argued that the agricultural rôle of the family-size farm must be strengthened; on this economic base, improvements must be made in rural education, health services, recreation, social security, and all types of organized group activity.

In offering this program of action, Prof. Lindstrom presents abundant data on the current status and trends of the rural population, agricultural economics, and rural institutions (the family, church, school, etc.). The complex variety of governmental programs developed to support the farm economy are succinctly described, as well as the efforts of farmers' organizations and other voluntary groups. Prof. Lindstrom maintains strict objectivity in his diagnostic accounts, but his recommendations for treatment reflect a particular point of view. It is the view of the main body of liberal students of American agriculture today.

There is a chapter devoted to health in rural areas which, despite a number of inaccuracies, gives a useful sketch of current problems. It is perhaps imbalanced in its recommendations, devoting relatively excessive attention to school health services, for example, while making only passing mention of insurance against medical service costs. Throughout the volume references to the health implications of various economic, demographic, or social situations are frequent and incisive.

While designed primarily for students of rural sociology, this study can be a valuable source book for all public health workers in rural areas. It would be hard to find a volume which could so well orient the newcomer in rural health service on the total setting of rural life in which he works. As health agencies have awakened to the importance of gaining the widest community understanding of public health programs, books of this type become as indispensable as manuals of communicable disease control. MILTON I. ROEMER

Foods, Production, Marketing, Consumption — *By Jean J. Stewart and Alice L. Edwards. (2nd ed.) New York: Prentice-Hall, Inc.,* 1948. 490 pp. Price, $6.35.

In the preface to the first edition which was published in 1938, three reasons for writing a book of this type were given: to lead individuals to reach proper conclusions on food problems, to discuss controversial problems as far as a book of this kind can do so, and to point out where information on food topics may be obtained. How much such information is needed today by

many homemakers who are posing as authorities in the food field! The book is in three parts with thirteen appendices. Part one concerns the need for food by individuals and groups; part two, foods, production, nutritive value, and buying; and part three, principles of cooking foods. In the appendices is a wealth of information relating to nutritive value of foods, adequate diets, cooking temperatures, and on a few other practical subjects.

In a few places the authors have shown lack of close familiarity with the subjects they discussed. Certified milk is said to be raw milk. Most of it today is pasteurized. In their discussion of canning of foods it is stated that heating or "processing" is for the purpose of sterlizing the food so that all organisms which cause spoilage may be destroyed. The implication in this statement is that they are destroyed if the food keeps, which is not the case. They speak of "oven sterilizing" when "oven processing" would be better, because the term "process" is the term applied to heating foods in canning. It was introduced when it became known that heating canned foods did not sterilize them. They speak of "sterilization of canned products" when even commercial canners cannot sterilize canned foods and have had to introduce the term "commercial sterilization." They state that thermophilic bacteria are *probably* responsible for flat-sour spoilage. These bacteria *are* the causes of it. Tomatoes are considered to be acid foods not requiring processing under pressure. Most of them probably are, but some species are too near the neutral point to be processed in boiling water. Home canned tomatoes have caused quite a few outbreaks of botulism. The organism causing botulism is called "bacillus botulinus" when the accepted name for many years has been *Clostridium botulinum*. The authors define evaporated milk as the partially dehydrated product prepared from whole or skimmed milk. The Standard of Identity for Evaporated Milk under the Food, Drug and Cosmetic Act of 1938 stipulates not less than 7.9 per cent of milk fat. Skimmed milk can be evaporated but it cannot be called "evaporated milk." By mentioning these points the reviewer does not wish to detract from the value of the book. They happen to be in his special field of interest. Some of the difficulty is due largely to the fact that the authors have tried to cover a large field in a book to be used by students.

F. W. TANNER

Enjoy Your Child—Ages 1, 2, and 3—Public Affairs Pamphlet No. 141 —*By James L. Hymes, Jr. New York: Public Affairs Committee, Inc.,* 1948. 32 pp. Price, $.20.

The author and the sponsoring committee of this relatively short but excellent pamphlet designed for parents of very young children deserve congratulation. The author has presented essential psychological facts of the child's early emotional development in language and form so clear, natural, vivid, and convincing that both the facts and his "helpful hints" of the management of the problems incident to the 1, 2, and 3 year old age should find ready acceptance. Acceptance of the facts and acting upon his hints should, in turn, contribute greatly to the happiness and understanding of all manner of parents in relation to the runabouts in the family and would, indeed, constitute the soundest basis for mutual democratic understanding between all ages and kinds of people. The author has artfully combined serious fact with pleasant humor, and a dozen drawings by Scheib amusingly illustrate the sense and spirit of the text.

In his selection of characteristic behavior of 1, 2, and 3 year olds, Mr. Hymes has described apparently differ-

ent problems of different ages, but he skillfully develops the fact that these various reactions are all basically responses of healthy growth and can all best be solved by a "basically healthy attitude" of the parents. In addition, he successfully groups the main behavior characteristics of the 1 to 3 year olds under two main subjects (goals), independence and security. This bi-polar classification is remarkable not only for its apparent simplicity but because it really helps to clarify the reasons for the particularly contrary nature of the toddler.

Most noteworthy of all in this exemplary presentation is the author's introductory address to the parents as experts. His implicit trust in them as already experienced observers courts their confidence for his guiding suggestions. The encouragement of such sensitive and pedagogical trust in the expertness of parental observation will go a long way in fostering the recommended parental attitude of "unconditional love." EDITH B. JACKSON

Essentials of Fevers—*By Gerald E. Breen. (2nd ed.) Baltimore: Williams & Wilkins,* 1948. 351 pp. Price, $4.50.

This book is a pocket-size edition written for medical students and young practitioners to acquaint them with the essentials of the commoner communicable diseases or fevers. It is surprising to find so much information in so small a volume. In addition to consideration of 21 communicable diseases, there are four introductory chapters, a section on physical diagnosis, and a terminal chapter of miscellany, including diagnostic errors. Although the material is largely clinical, preventive and public health aspects of the various infections are also considered.

The style is lucid, pleasantly readable, humorous, and interspersed with trite remarks, the latter pointing up the text. However, inherent in the compend is the danger of generalities and on this score the work suffers. It also seems unfortunate to this reviewer that there is no bibliography and that the index is so cursory. Charts and tables are generously interspersed in the text and there are 16 colored drawings, which are inferior to colored plates, but in this instance are distinctive because they illustrate what is intended very well and, furthermore, are the handiwork of the author. The book cannot be recommended as a communicable disease text, but it is packed with practical, usable information, which should be of value to the groups the author wishes to reach. FRANKLIN H. TOP

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

! ! !—Veterans of our own Association's annual dinners will find enlivening this story of our British counterpart's comparable function. The Society's president toasted the King (duly honored). Then the Minister of Health toasted the Society. Then the President toasted the Minister. Then a county-borough M.O.H. proposed a toast to the guests. And two guests offered what I assume might be called countertoasts. Seems like a fine old custom, doesn't it?

ANON. The Annual Dinner. Pub. Health. 52, 1:13 (Oct.), 1948.

Supportive Evidence—In a well controlled study, the British research council's investigation finds streptomycin therapy effective in doing what the patient's tissues alone cannot do against acute progressive tuberculosis.

ANON. Streptomycin Treatment of Pulmonary Tuberculosis. Brit. M. J. 4582:769 (Oct. 30), 1948.

Obtaining Sickness Data—This is pretty obvious, but it needs to be said—and read. The urgency of the tasks facing social scientists, has led them to "get on with the job" instead of developing and testing surveying technics. Sound research in morbidity survey methods is loudly called for, says this British scientist.

BRANSBY, E. R. Some Aspects of Morbidity Surveys. Brit. M. J. 4579:678 (Oct. 6), 1948.

Rattus rattus norvegicus — Alberta, it is reported, is rat-free and Albertans propose that it shall remain the only extensive rat-free area in America. It isn't altitude or climate or vegetation that keeps the province rat-free: it is determination. Perhaps you'll want to read about this unique manifestation of common intention.

BROWN, J. H. Alberta: The Only Rat-Free Province in Canada. Canad. Pub. Health J. 39, 9:367 (Sept.), 1948.

Preliminary Report — Penicillin taken by mouth immediately after presumed exposure to gonorrhea proved highly effective in this controlled Navy study. This might be called making the world safe for indecency.

EAGLE, H., *et al.* Prevention of Gonorrhea with Penicillin Tablets. Pub. Health Rep. 63, 44:1411 (Oct. 29), 1948.

Your Attention, Please — There really *is* something new under the sun—at least new to these rheumy eyes. For ten years a doctor has been urging that babies be fed from the cup from birth. (Premies, too, are included.) He claims several advantages which you will have to go to the original article to learn about.

FREDEEN, R. C. Cup Feeding of Newborn Infants. Pediatrics. 2, 5:544 (Nov.), 1948.

Tab Socks V. D.—Case histories of venereal patients printed week-by-week in a Columbus tabloid increased the paper's circulation satisfactorily and brought in plenty of customers for the rapid treatment center. The newspaper received a thousand requests for "literature."

FREEBLE, C. R., and ROBINSON, A. The Tabloid Newspaper as a Medium of Mass Public Venereal Disease Education. J. Ven. Dis. Inform. 29, 10:307 (Oct.), 1948.

Thought for the Month—It is not only the individual who can be perverted by information beyond his capability of absorption; the community, too, can react in a bizarre manner to an instinctive urge or some new fashion of thought. History abounds, the writer comments, in examples of psychic contagion. Isn't "psychic contagion" a nice phrase?

GRANT, J. The Stigma—A Problem of Social Medicine. J. Roy. San. Inst. 68, 6:593 (Nov.), 1948.

"Tribute to the Machine Age"—If you'd like a good, comfortable chuckle, hunt out this short item written by a witty sanitarian. Incidentally it will set you to wondering, a bit *un*comfortably, about the possibilities of such contraptions (see title below) in your own bailiwick.

HERRIN, W. J., JR. A Sanitarian Views a Doughnut Machine. The Sanitarian. 11, 2:58 (Sept.-Oct.), 1948.

Inverse—Over a twenty year span between community health surveys, the relationships of economic status and chronic disease were looked into. Families going downhill economically had

twice the illness rate of those families whose fortunes were looking up. Which was cause and which was effect are discussed.

LAWRENCE, P. S. Chronic Illness and Socio-Economic Status. Pub. Health Rep. 63, 47: 1507 (Nov. 19), 1948.

Wearying of Well-Doing — An effort to improve the nutrition of a group of Canadian school children through education of both parents and youngsters produced some results the first year, but "improvement in health was not continued during the second year and some deterioration was observed." Such honest reporting is as commendable as it is unusual.

SHAVER, E. M., *et al.* Nutritional Aspects of the Hartman Jones Memorial School Health Study. Canad. Pub. Health J. 39, 10:395 (Oct.), 1948.

New Knowledge: New Responsibilities—Though quarantine has been divested of much of the mumbo-jumbo which surrounded it, carefully supervised isolation procedures have lost none of their usefulness. If public health nurses are given more discretion now-a-days, they become all the more responsible. Better nursing is called for.

SHETLAND, M. Communicable Disease Nursing—1948. Pub. Health Nurs. 40, 11:543 (Nov.), 1948.

Target To Shoot at—Can you mold your words into bullets? This is the way Stokes does it. "Sex is now a physical property, like a car: a lure hung with furs, a smell with a suggestive name, something with a three-way stretch and seductive points—to be acquired, used, traded in for a newer model or rented for the occasion or the night like tie and tails." Read the whole paper.

STOKES, J. H. The Modern Venereal Disease Problem and Its Sex Education Front. J. Ven. Dis. Inform. 29, 10:296 (Oct.), 1948.

Why TB Patients Leave—In this discussion of measures to reduce the large numbers of patients who leave V A tuberculosis hospitals against advice, the word "health educator" does not seem to figure prominently. Better doctor-patient relationships are called for, and so are better social services to solve patients' problems. Health educators will suggest that they have a contribution to make to this worthy cause.

TOLLEN, W. B. Irregular Discharge. Pub. Health Rep. 63, 45:1441 (Nov. 5), 1948.

. . . And the Poor Get Sicker—Some of the breadth, and a lot of the limitations, of our understanding of the influences of social and environmental factors upon our national health are revealed in these four excellent researches into variations in morbidity and mortality rates.

WIEHL, D. G. Mortality and Socio-Environmental Factors, (and) DOWNES, J. Social and Environmental Factors in Illness, (and) BRITTEN, R. H. Physical Impairments and Socio-Environmental Factors, (and) COLLINS, S. D. Sickness Among Industrial Employees in Baltimore in Relation to Weekly Hours of Work, 1941–1943. Milbank Quart. 26, 4:335 (Oct.), 1948.

Pollyanna, Pass This By—Grim is the word for the chance of survival into middle age for children with rheumatic fever. Only half live beyond age 40. The likelihood of the affected child to reach each of the decade markers up to 40 are worked out with unrelenting mathematical exactitude.

WILSON, M. G., and LUBSCHEZ, R. Longevity in Rheumatic Fever. J.A.M.A. 138, 11:794 (Nov. 13), 1948.

Lighting Up the Great Darkness—Federal funds to the tune of 14 millions, many more millions of state appropriations, "Substantial aid" from the A. C. S. are ear-marked for cancer control—but more is needed if the disease is to be stopped. Above all there must be unification of effort, says this writer.

ZIMAND, S. Public Health Aspects of Cancer Control. Milbank Quart. 26, 4:430 (Oct.), 1948.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN STANDARD PRACTICE FOR SCHOOL LIGHTING. Illuminating Engineering Society and American Institute of Architects. New York: Illuminating Engineering Society, 1948. 79 pp. Price, $.50.

CHILDHOOD MORTALITY FROM RHEUMATIC FEVER AND HEART DISEASE. George Wolff. Washington, D. C.: Federal Security Agency, Social Security Administration, Children's Bureau. Publication 322, 1948. 63 pp. Price, $.25.

DANGER! CURVES AHEAD! Mirian Lincoln, M.D. New York: Macmillan, 1948. 138 pp. Price, $2.50.

DEMENTIA PRAECOX. Leopold Bellak, Foreword by Winfred Overholser. New York: Grune & Stratton. 1948. 448 pp. Price, $10.00.

FINDINGS AND RECOMMENDATIONS OF THE PHARMACEUTICAL SURVEY 1948. Washington, D. C.: American Council on Education, 1948. 49 pp. Price, $1.00.

GERMICIDES, ANTISEPTICS AND DISINFECTANTS FOR HOSPITAL USE. Dewey H. Palmer. New York: Hospital Bureau of Standards and Supplies, 1948. 15 pp. Price, $1.00.

A HANDBOOK OF RECORDED NOTATIONS—VOCATIONAL NURSING. For Use With the Text "Vocational Nursing for Home, School, and Hospital." Alice L. Price. St. Louis: C. V. Mosby, 1948. 163 pp. Price, $2.00.

HANDBOOK OF DENTAL PRACTICE. Edited by Louis I. Grossman, Philadelphia: J. B. Lippincott. 1948. 417 pp. Price, $12.00.

THE LITERATURE ON STREPTOMYCIN. Selman A. Waksman. New Brunswick, N. J.: Rutgers University Press, 1948. 88 pp. Price, $3.00.

MINERAL NUTRITION OF PLANTS AND ANIMALS. Frank A. Gilbert. Norman, Okla.: University of Oklahoma Press, 1948. 117 pp. Price, $2.75.

THE NATIONAL CONFERENCE ON UNDERGRADUATE PROFESSIONAL PREPARATION IN PHYSICAL EDUCATION, HEALTH EDUCATION AND RECREATION. Held at Jackson's Mill, Weston, W. Va., May 1948. Chicago, Ill.: Athletic Institute, 1948. 40 pp. Price, $1.00.

OVERWEIGHT IS CURABLE. Wilfred Dorfman and Doris Johnson. New York: Macmillan, 1948. 160 pp. Price, $2.75.

PATHOLOGY. W. A. Anderson (Edited by). St. Louis: C. V. Mosby, 1948. 1183 illus. 1453 pp. Price, $15.00.

PREMATURE INFANTS. A Manual for Physicians. Ethel C. Dunham. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office. Children's Bureau Publication No. 325. 1948. 387 pp. Price, $1.25.

A PROGRAM FOR THE NURSING PROFESSION. Committee on the Function of Nursing. New York: Macmillan, 1948. 108 pp. Price, $2.00.

SELECTED WORKS OF HENRY CLAPP SHERMAN. New York: Macmillan, 1948. 1056 pp. Price, $5.00.

THE SKIN DISEASES. James Marshall. New York: Cambridge University Press, Macmillan, 1948. 363 pp. Price, $7.50.

STATISTICAL ABSTRACT OF THE UNITED STATES 1948. Compiled under the Supervision of Morris H. Hansen. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office, 1948. 1018 pp. Price, $2.75.

STUDIES IN PSYCHOSOMATIC MEDICINE. Edited by Franz Alexander and Thomas Morton French. New York: Ronald Press, 1948. 568 pp. Price, $7.50.

VITAMINAS Y SANGRE. Gustavo Pittaluga. Havana, Cuba: Cultural, S. A., 1948. 712 pp.

VOCATIONAL NURSING FOR HOME, SCHOOL AND HOSPITAL. Alice L. Price. St. Louis: C. V. Mosby, 1948. 344 pp. Price, $4.00.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

DETROIT DEPARTMENT OF HEALTH ANNUAL REPORT 1947. Detroit, Mich.: City Health Department. 70 pp.

DEWITT-PIATT COUNTY HEALTH UNIT. Semi-annual Report January through June 1948. Clinton, Ill.: DeWitt-Piatt County Health Unit, 1948. 11 pp.

DULUTH MINNESOTA HEALTH DEPARTMENT. Biennial Report 1946–1947 Supplement to Biennial Report. Duluth, Minnesota: City Health Department.

DURBAN, SOUTH AFRICA. Annual Report of City Medical Officer of Health Year Ending June 30, 1947. Durban: Hayne & Gibson (Pty) Ltd. 48 pp.

THE EYE-BANK FOR SIGHT RESTORATION, INC. Third Annual Report. New York: Eye-Bank for Restoration, 1948. 19 pp.

HOSPITAL COUNCIL OF GREATER NEW YORK. 10th Annual Report 1947–1948. New York: Hospital Council of Greater New York. 28 pp.

MACON COUNTY TUBERCULOSIS SANATORIUM. 25th Annual Report for the Year Ending May 31, 1948. Decatur, Ill.: Macon County Tuberculosis Sanatorium, 1948. 31 pp.

MADISON, WISCONSIN. Annual Report 1947 of the City Department of Public Health. 38 pp.

NATIONAL TUBERCULOSIS ASSOCIATION. Annual Report April 1, 1947 to March 31, 1948. New York: N.T.A., 1948. 63 pp.

NEW ZEALAND, AUSTRALIA. Annual Report of the Department of Health 1948. Wellington, Australia: Government Printer, 1948. 108 pp.

THE REGIONAL HOSPITAL PLAN. The Second Year's Experience 1947. Rochester, N. Y.: The Council of Rochester Regional Hospitals. 75 pp.

REPORT ON THE OPERATION OF KANSAS JOINT MERIT SYSTEM. July 1947 through June 1948. Topeka, Kansas: Kansas Joint Merit System Council.

SACRAMENTO COUNTY YOLO COUNTY MOSQUITO ABATEMENT DISTRICT. Annual Report 1947–1948. Sacramento, Calif.: Court House Room 126-D. 24 pp.

WILL COUNTY HEALTH DEPARTMENT, SIXTH ANNUAL REPORT July 1, 1947–June 30, 1948. Joliet, Illinois: Will County Health Department.

PRELIMINARY ANNUAL REPORT VITAL STATISTICS OF CANADA—1947 TENTATIVE FIGURES. Ottawa, Canada: Dominion Bureau of Statistics, 1948. 47 pp. Price, $.25.

PRESIDENT'S COMMITTEE ON NATIONAL EMPLOY THE PHYSICALLY HANDICAPPED WEEK. Employment of the Physically Handicapped Selected References. Compiled by Helen M. Steele and Lola A. Wyckoff. Washington, D. C.: U. S. Department of Labor, 1948. 68 pp.

PUBLIC HEALTH RELATIONS, COMMITTEE ON REPORT OF ACTIVITIES FOR THE YEAR 1947. New York: New York Academy of Medicine. 56 pp.

REPORT OF THE MEDICAL OFFICER OF HEALTH FOR THE YEAR 1947. City and County of Bristol, England. Bristol 6, England: Department of Public Health. 40 pp.

SECOND INTERIM REPORT CONCERNING CARE OF THE CHRONICALLY ILL IN ILLINOIS. June 1947. Springfield, Ill. Commission on the Care of Chronically Ill Persons, 1948. 279 pp.

STATE OF CONNECTICUT. 61st Report of the State Department of Health for the Year Ended June 1946. Hartford, Conn.: State Department of Health, 1946. 326 pp.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

OBSERVATION of current medical and public health literature from Latin American countries clearly reveals the considerable efforts that are being made to deal with problems of health. Demographic questions, infant mortality, tuberculosis, malaria, venereal disease, nutrition, parasitic infestations —all are being studied and are receiving attention. In different countries these tendencies are evident in greater or lesser degree. Brazil affords an interesting illustration in point.

BRAZILIAN DEMOGRAPHY AND VITAL STATISTICS

Like the United States and other countries of the Americas, Brazil passed through a colonial stage, the influence of which is still evident. The meaning of the colonial period has been clearly presented in two works that are indispensable for an understanding of Brazilian development. These are *Casa-Grande & Senzala* by Gilberto Freyre[1] and *Os Sertões* by Euclides da Cunha.[2] Both authors lay emphasis on the heterogeneity of the Brazilian population, and indicate the role of immigration in forming the Brazilian of today. The significance of migration in the growth of Brazil's population is studied in detail in a recent monograph by Giorgio Mortara.[3] At the very outset,

Mortara points out that demographic studies of American populations have been considerably handicapped by deficiencies of birth and death registration, and by the absence or irregularity of population censuses in many countries of the Western Hemisphere. Even in the United States where censuses have been taken since 1790, the registration of births and deaths has attained a satisfactory degree of completeness only very recently. In other American countries, among them Brazil, this goal is still far off.[4] Nevertheless, skillful utilization of available statistical data permits a good approximation to the missing information, and thus a reconstruction of population development.

Mortara ascribes the total increase in American populations to two different growth factors, one, excess of immigration over emigration, and, two, excess of births over deaths. He then proceeds to study population growth in Brazil during the last hundred years, and presents a brief account of the five Brazilian population censuses (1872, 1890, 1900, 1920, 1940). From a comparative analysis of the results of these censuses it can be shown that there was some understatement of the total population in the 1900 census, and a relatively greater overstatement in the 1920 census.

A special problem in the interpretation and correction of census data is considered in a critical analysis of the declarations of old age, particularly of declarations by centenarians. Ignorance, amnesia, and senile vanity all tend to raise declarations of extremely advanced age to almost incredible proportions. In countries where birth registration is long established and well organized, such errors are not so frequent and can be corrected by comparison of declared ages with information in birth registers. However, where such information is lacking, as in Brazil, control is virtually an impossibility. By comparative analysis and by applying survival rates calculated from Brazilian life tables, Mortara determined approximately the true number of centenarians in 1940. Comparison of this estimate with the data obtained in the 1940 census showed that untrue declarations of extremely advanced age were still frequent, although relatively less than in earlier censuses.

Brazilian public health authorities are aware of the deficiencies in their vital statistics. Provisional data in a survey undertaken by the Federal Biostatistics Service show that in 1945 the percentages of non-registered live births ranged from 64.7 (Teresina) to 21.6 (Curitiba).[5] Similarly, deaths are not completely registered. In 1943, 1944, and 1945 respectively, 1.8 per cent, 1.46 per cent, and 1.4 per cent of deaths reported to the Federal Biostatistics Service were not recorded by the registrars. Far worse, however, is the situation regarding stillbirths (and abortions), of which 68 per cent, 67.2 per cent, and 63.3 per cent known in the Federal District in 1943, 1944, and 1945 respectively were not registered.

In order to obtain more complete reporting the Serviço Especial de Saúde Pública decided to carry out a systematic investigation in areas which it covers in the Amazon and Rio Doce regions. For live births additional information is to be collected from baptisms and similar religious acts, as well as from maternity institutions, visiting nurses, child hygiene service, dispensaries and home immunizations. Additional information on deaths and stillbirths is to be supplemented by data from other sources, especially cemeteries serving the area under control.

WATER SUPPLY IN VARIOUS REGIONS OF BRAZIL

The problem of water supply and sewerage is also of considerable concern to Brazilian public health workers.

Gonçalves Ferreira points out that the installation of good water supply and sewerage systems is of primary importance in improving the health and well-being of the people of Brazil.[6] Statistics show that installing such services, as well as other public health measures, in Brazilian cities can save annually the lives of 15,000 people who now die of typhoid fever, dysentery and other enteric diseases. Examination of typhoid fever death rates in the Federal District for the last two 5 year periods reveals sanitary conditions that are not flattering to the capital of Brazil. The sewerage system is still poor, with over 50 per cent of the houses not connected to the system, and without privies of any kind. Furthermore, the water supply system is also not without defects. In considerable degree, unsatisfactory health conditions in Rio de Janeiro, of which frequent outbreaks of typhoid fever offer eloquent testimony, are due to the factors described.

Ferreira goes on to say that water cannot be considered of good quality, even though obtained from well protected springs, if it does not undergo any treatment. In the Rio Doce Valley, where water from the subsoil is generally unsuited for drinking purposes unless treated, the cost of treatment, including filtration system and reservoirs, has been calculated at Cr $250 per capita for the entire system. In the Amazon Valley the Serviço Especial de Saúde Pública has successfully shown that dug wells of large diameter are good, practical, and economical sources of drinking water for the majority of the urban communities in that area. It has been estimated that complete cost of installation, including wells, elevated reservoir, and distribution system, would be Cr $100 per person..

To remedy existing conditions, Ferreira proposes that every state in Brazil, including the Federal District, should have a Division of Sanitary Engineering in the Public Health Department. This division should be responsible for studying, supervising, and giving advice on water purification, sewage treatment, garbage disposal, insect and rodent control, food sanitation, disposal of industrial wastes, and sanitation of swimming pools.

In part, projects of this kind are being carried out in various parts of Brazil. These are connected with a water supply study recently undertaken by the Sanitary Engineering Section of the National Department of Health. This study envisages two stages. The first phase, which is now being carried out, is concerned with ascertaining the water needs of the Brazilian population, and the relations of these needs to financial resources in the different localities. The second phase, revolves around the assembling of data for the solution of specific problems. A full discussion of this water supply study as well as of other sanitary engineering activities in Brazil is available in a recent paper by Carvalho.[7] Other reports that may be consulted in this connection are those by Bovée,[8] Hummel,[9] and Miranda and coworkers.[10]

SCHISTOSOMA MANSONI IN BRAZIL

Among the public health and medical problems of Brazil those arising out of parasitic infestation occupy a prominent place. In a recently published monograph, Meira draws particular attention to one of these, schistosomiasis due to *S. mansoni*.[11] The author considers schistosomiasis an important public health problem and emphasizes its social, economic, and medical significance. Review of the available data indicates that published surveys do not give a true picture of the extent of the infection. There is substantial evidence that schistosomiasis mansoni is intensely endemic in extensive areas of Brazil. Surveys have been conducted by means of stool examinations, as well as through

pathological examinations, including liver biopsies. The incidence has been estimated at 6.2 per cent for the country as a whole. This figure would correspond to 2,808,600 individuals with schistosomiasis. For the Northern States and Minas Gerais only, which are known to be important endemic foci, Meira found the incidence to be 8.65 per cent and estimated that the approximate number of infected people was 1,817,892 in that area. He regards the true prevalence as exceeding these figures.

As regards the prevalence of schistosomiasis, Sergipe and Alagoas occupy first and second place, while the states of Bahia, Pernambuco, and Minas Gerais are third, fourth and fifth respectively. Infection with *S. mansoni* is known to occur all over Brazil, but except for a few areas the data are fragmentary and unrepresentative. Finally, Meira emphasizes the incomplete knowledge concerning the geographical distribution of the intermediate hosts of *S. mansoni*. For all those interested in this subject, this monograph has a bibliography which includes almost all the papers published in Brazil on schistosomiasis.

TUBERCULOSIS IN BRAZIL

Another problem of considerable importance is tuberculosis. This problem is being attacked from various points of view. Considerable attention is being given to statistical variations in mortality. For example, Machado reports on the tuberculosis mortality in various municipalities of Rio Grande do Sul during the period 1941–1943.[12] He found that the rate for all forms of tuberculosis was 97 per 100,000 population. There were wide variations, however, ranging from 5 to 411 per 100,000.

In the same state (Rio Grande do Sul), Costa studied the tuberculosis death rate in relation to socio-economic conditions.[13] He compared three regions with different economic characters, one predominantly pastoral, the second characterized by small industry and agriculture, and the third area by agriculture and cattle raising. Comparison of the death rates for the three zones showed a high rate for the predominantly pastoral, frontier region as compared to the other two.

Neves points to the necessity for employing different techniques when carrying on mass surveys of urban and rural populations.[14] In the Latin American countries the tuberculosis problem has a dual aspect, rural and urban. Mass x-ray surveys are particularly indicated for urban working class populations over the age of 15. On the other hand tuberculin testing is important for rural inhabitants up to the age of 25, and among urban individuals from 12 to 15.

The significance of the tuberculosis problem in Brazil may be seen again from Cardoso's study of the disease in Aracaju, capital of Sergipe.[15] In this city tuberculosis has assumed epidemic aspects, and accounts for 10 per cent of the total mortality. The greatest mortality occurs in the 21 to 40 age group, and also in males. Domestic servants and workers provide the bulk of those who are attacked by the disease. Tuberculin testing of individuals in the 9 to 14 age group showed 52.2 per cent positive. Cardoso emphasizes that the tuberculosis control program must be based on the epidemiology of the disease, taking as its basis the triad: host, infecting organism, social environment. No control of tuberculosis is possible without some improvement of housing and nutrition.

De Paula and Santos report their experiences with tuberculosis in pregnancy.[16] During a 2 year period they treated 43 pregnant women with tuberculosis. After analysis of the obstetrical condition of each patient and the state

of the pulmonary disease, they reached the conclusion that the way to care for these patients was to treat the tuberculosis and to observe the pregnancy. De Paula and Santos advise chest x-ray surveys for pregnant women, establishment of separate maternity sections for pregnant women with tuberculosis, and BCG vaccination of the new-born babies. Finally, they feel that abortion is justified only in exceptional cases.

De Assis also recommends BCG vaccination for the prevention of tuberculosis among infants in Rio de Janeiro.[17] He points out the advantages of oral administration. After discussing the Brazilian work on BCG he arrives at the conclusion that BCG is responsible for a reduction of 50 per cent in tuberculosis morbidity, and of about 80 per cent in tuberculosis mortality. De Assis then discusses the problem of revaccination with his method, which consists in the oral administration of six monthly doses of 100 milligrams each of BCG. He presents the results of his experiences with 61 children, each one living with at least one tuberculous person. The incidence of primary infection in this group was 11.45 per cent, the mortality zero.

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2. da Cunha, Euclides. *Rebellion in the Backlands (Os Sertoes).* Chicago: University of Chicago Press, 1944.
3. Mortara, Giorgio. *Pesquisas sôbre populaçoes americanas* [Estudos Brasileiros de Demografia, Monografia No. 31]. Rio de Janeiro, 1947.
4. One facet of this problem is discussed in Michel J. Saade: Verificação estatistica do grau de deficiência do registro de nascimentos. *Revista do Serviço Especial de Saúde Pública,* 1:449–467, 1947–48.
5. Scorzelli, Achilles, Jr. Coleta de dados vitais em pequenas localidades. *Revista do Serviço Especial de Saúde Pública,* 1:397–432, 1947–48.
6. Gonçalves Ferreira, Antonio Barreto. O problema da agua potavel em varias regioes do Brasil. *Revista do Serviço Especial de Saúde Pública,* 1:997–1057, 1947–48.
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8. Bovée, Clifton. Abastecimento dágua no Vale do Rio Doce. *Revista do Serviço Especial do Saúde Pública,* 1:469–504, 1947–48.
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11. Meira, João Alves. Esquistosomiase mansoni. Subsidio ao estudo de sua incidência e distribuicão geográfica no Brasil-Lista bibliográfica sôbre a esquistosomose mansoni (doenca de Manson-Pirajá da Silva). *Arquivos da Faculdade de Higiene e Saúde Pública,* da Universidad de São Paulo, 1:5–146, 1947.
12. Machado, Leonidas Soares. Óbitos por tuberculose (tôdas as formas) nos municipios do Rio Grande do Sul, no triêno 1941–1943. *Revista Brasileira de Tuberculose,* 16:353–364, 1947.
13. Costa, Bonifácio. Latifundio e tuberculose (aspectos de visinhança). *Revista Brasileira de Tuberculose,* 16:57–68, 1948.
14. Neves, Jayme Dos Santos. Variação da técnica censitária de acôrdo com a coletividade urbana ou rural. *Clinica Tisiólogica,* 3:61–70, 1948.
15. Cardoso, Walter. Aspectos da tuberculose em Aracaju. *O Hospital,* 33:83–115, 1948.
16. de Paula, Aloysio, and Santos, Roberto G. Simonard. Tuberculose e gravidez. *Revista Médica Municipal,* 11:125–158, 1947.
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New Year's Message from the President of the American Public Health Association

I welcome this opportunity to extend warm and cordial greetings to those who are devoting their lives to public health service.

As 1949 opens it must be gratifying to you as it is to me to realize that the public is recognizing its dependence on the public health professions more than ever before. Undoubtedly this places upon you and me a heavier obligation than we have previously carried for doing the job well. I like to think of the new resources we have in trained persons, in expanded programs, and more adequate money. We shall not be found wanting throughout the months of this year.

A generation ago Hermann M. Biggs pointed out that "Public health is purchasable and, within certain limits, communities may determine their own death rates." That is an appealing challenge. We should help the public to accept the challenge, as a philosophy, and we must make sure that into that acceptance we are ready to put the organization and the personnel to achieve this happy end.

Such a philosophy puts a high premium on planning for the future so that the public may find us ready to meet our task, which is the promotion of health, the prevention of disease, and the prolongation of life.

The Association has recently had a visitor from Germany who came with the express purpose of finding what the American Public Health Association represented. He asked many discerning questions, underlying all of which was his query, "How does it come that in North America the public health professions have organized themselves under auspices that include all branches of the professions and which over a period of years have exerted a profound influence on all aspects of the public health movement?" It would be understandable, he said, if the American Public Health Association were vested with legal authority. How does it happen that without a scintilla of authority the Association has been able, for example, to publish the definitive report on communicable disease control for more than three decades, which has periodically been approved by the United States Public Health Service and more recently by other governments?

These questions have led some of us to look at the American Public Health Association from a fresh viewpoint. We are grateful for the privileges we have of serving the public through this voluntary association of ours, and we venture to hope that through 1949, as in future years, we may continue to be strong and free.



President

Photographic Spotlights of



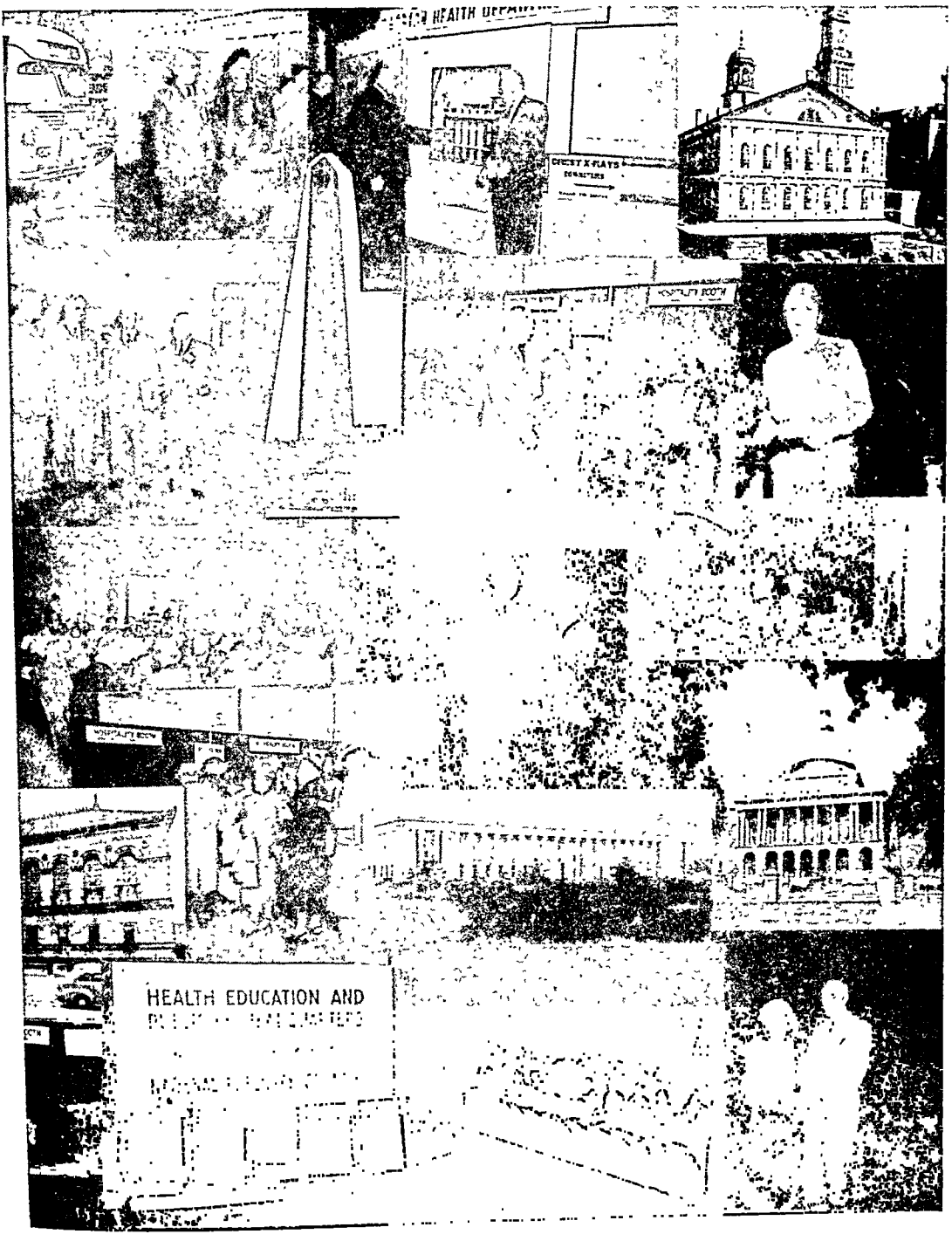
Starting at the top left hand corner and proceeding across the pages, each row always from left to right—

Row 1: (1) Registration, (2) U. S. Frigate "Constitution"—"Old Ironsides," (3) Chartered bus for sight-seeing trip, (4) Gen. and Mrs. James S. Simmons, (5) Boston Health Department Exhibit with Dr. John H. Cauley and Dr. Carl Buck, (6) Faneuil Hall.

Row 2: (1) Head table at Governor's Luncheon on Tuesday; (2) Speakers at Lemuel Shattuck Lecture, (3) Old State House, (4) Governor's Luncheon Group, Dr. Atwater, Dr. Getting, Lt. Gov. Coolidge, and Dr. Wilinsky, (5) Bunker Hill Monument, (6) Hospitality Booth showing Miss Margaret Tracy, and Mrs. Elizabeth Caso, (7) Dr. Martha Eliot receiving Lasker Award.

Row 3: (1) Whittier Street Health Unit, (2) Annual Banquet showing Dr. Wilinsky, Mrs. Lasker, Dr. Conant, and Dr. Eliot, (3) Trip to Long Island Hospital aboard the "James M. Curley," (4) Head Table at Mayor's Luncheon on Monday, (5) Dr. and Mrs. Abel Wolman, (6) Dr. Conant.

the Boston Annual Meeting



Row 4: (Odd row—one picture only) (1) Registration.

Row 5: (1) Dr. Eliot at Governor's Luncheon, (2) The Minute Man, Lexington, (3) Dr. and Mrs. John H. Cauley, (4) Boston Public Library, (5) Queue at Hospitality Booth, (6) Boston Museum of Fine Arts, (7) The State House.

Row 6: (1) Group at Mayor's Luncheon from left to right, Dr. Cauley, Mrs. Cauley, Mrs. Wilinsky, front of Mrs. Cauley, Mrs. Curley, Mayor Curley, Dr. Eliot, Dr. Wilinsky, Dr. Getting, and Mrs. Getting, (2) Mrs. Lasker, (3) Paul Revere House, (4) Hospitality Booth with Miss Margaret Tracy and Mrs. Caso, (5) Publicity Headquarters, (6) Head Table at the Annual Banquet, (7) Dr. and Mrs. Reginald M. Atwater.

ASSOCIATION NEWS

ACTION ON PROPOSED AMENDMENTS TO CONSTITUTION AND BY-LAWS, A.P.H.A.

The A.P.H.A. membership will be interested in the vote on the Constitutional Amendments proposed by the Committee on Constitution and By-Laws with the approval of the Governing Council and the Executive Board and published in the October issue of the *American Journal of Public Health* (page 1473).

Proposed Constitution Amendments Nos. 1 and 2 provided for the election of the ten elective members of the Governing Council annually by the members and Fellows instead of by Fellows only. The affirmative action of two-thirds of the Fellows voting at the Annual Meeting was required for the adoption of these amendments. The affirmative votes totaled 292, lacking 7 votes of the 299 required for adoption. There were 95 negative votes and Constitution Amendments 1 and 2 were correspondingly not approved.

Constitution Amendment No. 3 clarified the terms of newly elected councilors which begin with the first meeting of the New Governing Council held immediately after the Old Governing Council adjourns. This Amendment was adopted with 383 affirmative votes and 4 negative votes.

Constitution Amendment No. 4 provided for a mail vote by Fellows on amendments to the Constitution instead of restricting this important responsibility to those Fellows present and voting at an Annual Meeting. This Amendment received 370 affirmative votes and 16 negative.

Amendments 3 and 4 were declared adopted and effective with the close of the 76th Annual Meeting on November 12, 1948.

Certain amendments to the A.P.H.A. By-Laws were proposed to members of the Governing Council by the Committee on Constitution and By-Laws in compliance with the requirement of prior notice before amendments may be considered. The entire Constitution and By-Laws will be reprinted in its revised form in a forthcoming issue but in the meantime a brief summary is presented of the Governing Council actions on the seven amendments proposed to the By-Laws.

By-Laws Amendment No. 1 was a simple clarification of the rights of Honorary Fellows who retain all the privileges of Fellowship or membership under their former status. It was unanimously adopted.

By-Laws Amendment No. 2 was planned to implement proposed amendments Nos. 1 and 2 of the Constitution if they were passed. Under the circumstances By-Laws Amendment No. 2 was withdrawn. It is not now part of the By-Laws.

By-Laws Amendment No. 3 liberalizes a former policy of canceling dues of persons who have been affiliated for a long period. This amendment, which was adopted, provides dues exemption for persons who have been affiliated for thirty years and who have been retired, and it covers the forty year arrangement which previously abolished dues after forty years regardless of retirement, but which has not been previously carried in the By-Laws.

By-Laws Amendment No. 4 was adopted as an entirely new article providing for the election of elective members of the Governing Council *by mail* by Fellows only, instead of the existing procedure whereby only Fellows attend-

ing the Annual Meeting might vote for the elective councilors. This amendment sets up the necessary steps for a mail ballot but makes no change in the method of selecting Governing Council nominees nor the composition of the Nominating Committee. It is provided, however, that the President shall appoint the Tellers in advance of the Annual Meeting.

By-Laws Amendment No. 5 provides three year terms for the three representatives from the Health Officers Section to the Committee on Administrative Practice. Previously these had been elected annually. It was adopted.

By-Laws Amendment No. 6 clarifies the responsibilities of the Standing Committee on Research and Standards. It was adopted and the Committee is now responsible for initiating, conducting, promoting, coördinating and reviewing research and development of standards in the technical branches of public health.

By-Laws Amendment No. 7 modifies the routine for fixing the time of the Annual Meeting, committing this responsibility to the Executive Board where as a matter of fact it has been exercised for many years. It was adopted.

New By-Laws became effective as of November 12, 1948.

RESOLUTIONS

THE following Resolutions were unanimously adopted by the Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948:

1. APPRECIATION TO OFFICIALS AND GROUPS

RESOLVED that the American Public Health Association expresses its grateful appreciation to the Boston Committee and the agencies represented thereon for their gracious hospitality, and be it further

RESOLVED that the warm thanks of officers and members be extended to John H. Cauley, M.D., Chairman of the Boston Committee and his colleagues on the Committee for their many courtesies, generous contributions of time and energy, and their efficiency in making provisions for this meeting and in the conduct thereof.

2. THANKS TO THE AUDITORIUM AND HOTELS

RESOLVED that the American Public Health Association expresses its appreciation to the Mechanics Building, the Statler Hotel, and all other Boston hotels that opened their doors to us for their valuable assistance in the conduct of the Seventy-sixth Annual Meeting.

3. APPRECIATION TO THE PRESS AND RADIO

RESOLVED that the American Public Health Association acknowledges its indebtedness to the press and radio, national, state, and local, for excellent service in carrying to the people of America the important events of the Seventy-sixth Annual Meeting.

4. APPRECIATION TO EXHIBITORS

RESOLVED that the American Public Health Association expresses its grateful appreciation to those who have presented at its Seventy-sixth Annual Meeting the excellent exhibits, both scientific and technical, which are of such great interest and value to the public health profession.

5. IN MEMORIAM

RESOLVED that it is with a sense of irreparable loss that the American Public Health Association records, since its last Annual Meeting, the death of 66 Fellows and members, whose names constitute a part of this resolution.

Deceased Members and Fellows of the AMERICAN PUBLIC HEALTH ASSOCIATION—October, 1947, through October, 1948

NAME	ELECTED MEMBER	ELECTED FELLOW
Howard S. Allen, M.D., Woodbury, Conn.	1944	
James F. Arbuckle, White Plains, N. Y.	1946	
Richard S. Austin, M.D., Cincinnati, Ohio	1937	
Karl R. Bailey, M.D., Boston, Mass.	1946	
Philip E. Blackerby, M.D., Louisville, Ky.	1933	1945
Frederick Boerner, V.M.D., Drexel Hill, Pa.	1943	
Midian C. Bousfield, M.D., Chicago, Ill.	1931	1935
Joseph F. Bredeck, M.D., D.P.H., St. Louis, Mo.	1933	
W. M. Brien, M.D., Orange, N. J.	1935	
Elizabeth C. Brown, Columbia, Mo	1938	1942
Harley A. Bunner, Atlanta, Ga.	1946	
Donald A. Campbell, M.D., Neosho, Mo.	1943	
Hyman M. Charm, Sc.D., New York, N. Y.	1937	
Jesse H. Crouch, M.D., Richmond, Va.	1925	1931
Joe Davis, Seattle, Wash.	1943	
Francis P. Denny, M.D., Brookline, Mass.	1901	1922, Charter Fellow
Mrs. Sigrid M. Dudley, Marinette, Wis.	1930	
Andrew G. DuMez, Ph.D., Baltimore, Md.	1919	
Joseph P. Franklin, M.D., Cumberland, Md.	1946	
Florence A. Gates, South Nyack, N. Y.	1946	
Omer R. Gillett, M.D., Colorado Springs, Colo.	1912	1922, Charter Fellow
Harold J. Halligan, M.D., Jersey City, N. J	1946	
Samuel McC. Hamill, M.D., Philadelphia, Pa.	1922	1940
James H. Heald, Winston Salem, N. C.	1919	
Roberts A. Hearn, M.D., Battle Creek, Mich.	1943	
Julius A. Hene, M.D., New York, N. Y.	1940	
Elsie Hickey, Toronto, Ont., Canada	1944	
W. W. Hume, M.D., Beckley, W. Va.	1931	
A. W. Jones, St. Louis, Mo.	1925	1934
Stroud Jordan, Ph.D., New York, N. Y.	1944	
Mrs. Edna M. Kech, Harrisburg, Pa.	1940	1946
Sara Kerr, Buffalo, N. Y.	1935	
Conrad Kinyoun, Savannah, Ga.	1926	1933
Millard Knowlton, M.D., Hartford, Conn.	1915	1922, Charter Fellow
Thomas J. LeBlanc, Sc.D., Cincinnati, Ohio	1933	
David B. Lepper, M.D., Bluefield, W. Va.	1923	1927
Dwight M. Lewis, M.D., New Haven, Conn.	1907	1923, Charter Fellow
James W. Loughlin, M.D., New Castle, Me.	1933	
Jesse Lynn Mahaffey, Haddonfield, N. J.	1931	
Harold G. McGee, Akron, Ohio	1915	1922, Charter Fellow
Marshall W. Meyer, M.D., M.P.H., Madison, Wis.	1940	1947
Edward L. Miloslavich, M.D., Zagreb, Yugoslavia	1926	1932
D. C. Y. Moore, M.D., Manchester, Conn.	1920	1937
Don C. Peterson, M.D., Nashville, Tenn.	1931	1934
Berthold S. Pollak, M.D., Jersey City, N. J.	1923	
Frank T. Powers, Glen Cove, N. Y.	1934	
Clementine J. Prior, Yakima, Wash.	1935	
Albert E. Rector, M.D., Appleton, Wis.	1943	
Benjamin B. Robbins, M.D., Bristol, Conn.	1927	
Kingsley Roberts, M.D., New York, N. Y.	1939	
Leslie A. Sandholzer, Ph.D., College Park, Md.	1940	1944
Wellington P. Shahan, Springfield, Ill.	1941	
Thomas T. Sheppard, M.D., Pittsburgh, Pa.	1946	
William M. Sill, M.D., Jamestown, N. Y.	1926	

NAME	ELECTED MEMBER	ELECTED FELLOW
William M. Smith, M.D., M.P.H., Olean, N. Y.	1938	1943
George A. Soper, Ph.D., Hampton Bays, L. I., N. Y.	1895	1922, Charter Fellow
Frances Stern, Boston, Mass.	1921	1935
Ralph E. Tarbett, Takoma Park, Md.	1928	1930
Holman Taylor, M.D., Fort Worth, Tex.	1930	
Herbert F. True, M.D., Sacramento, Calif.	1926	1930
B. H. Vollertsen, M.D., Pennsgrove, N. J.	1937	
John H. Watkins, Ph.D., New Haven, Conn.	1929	1934
C. H. Watson, Pocatello, Idaho	1943	
Kenneth M. Wheeler, Ph.D., Hartford, Conn.	1940	1943
Stephen E. Whiting, Swampscott, Mass.	1935	1940
Mrs. Harriet M. Williams, Akron, Ohio	1945	

6. THANKS FOR SPECIAL PRIVILEGES EXTENDED

Of unusual interest and value to the participants at this Seventy-sixth Annual Meeting have been the many opportunities to see at first hand many of the scientific, industrial and historical features of the Boston area.

RESOLVED that the American Public Health Association expresses its sincere thanks to the agencies of the City of Boston and the State of Massachusetts, to the universities and hospitals of Greater Boston, and to those industrial organizations that made their services available for the special benefit of our members.

7. RESEARCH IN CHILD LIFE

WHEREAS, there is great need for exchange of information about studies in progress concerning physical, mental, social, and emotional problems of children, and

WHEREAS, at the request of research workers, a Clearing House for Research in Child Life is being established in the Children's Bureau, therefore be it

RESOLVED that the American Public Health Association respectfully directs the attention of public health workers to this clearing house and recommends their full support in promoting its activities and their participation in supplying information about research projects to the clearing house.

8. SCHOOL HEALTH

WHEREAS, the American Public Health Association is concerned with the health of the total community, and

WHEREAS, it has become increasingly clear that the school health program can contribute significantly to the overall public health program, and

WHEREAS, both education and health departments have great interest in the health of the school age child, and

WHEREAS, it is becoming increasingly apparent that where there is a high degree of mutual understanding and coöperation between departments of health and education, with the resultant pooling of the resources of both departments, good school health programs are being developed, be it

RESOLVED that the American Public Health Association join with the National Education Association and the American Medical Association and other groups in approving the principle of coöperative planning of health programs which involve children of school age.

9. HEALTH OF SCHOOL CHILDREN

WHEREAS, the allocation of the moneys to schools and school districts is based upon a variety of formulae, among which is the classroom unit as computed by average daily attendance, and

WHEREAS, if funds are allotted on the basis of average daily attendance,

school officials find it to their advantage strongly to promote daily attendance of all children at school, and

WHEREAS, the encouragement of children to attend school when they are ill has deleterious effects upon the health of individual children and may be responsible for the spread of communicable disease, therefore, be it

RESOLVED that the American Public Health Association join with the National Education Association, the American Medical Association and other groups in decrying this practice, and be it further

RESOLVED that the National Council of State School Officers and the Association of State and Territorial Health Officers be urged to develop a plan of allotting tax moneys for educational purposes in a way that is not deleterious to the health of children.

10. EDUCATION OF NURSES

WHEREAS, there has been a particularly significant study of the education of nurses conducted by Dr. Esther Lucile Brown at the request of the National Nursing Council and financed by the Carnegie Foundation, (*Nursing for the Future,* Esther Lucile Brown, Ph.D., published by the Russell Sage Foundation, 1948), and

WHEREAS, the findings of this study have far-reaching implications for the future education of nurses for public health, therefore be it

RESOLVED that the Committee on Professional Education of the American Public Health Association give the report its thoughtful consideration.

11. RECRUITMENT OF NURSES

WHEREAS, an acute shortage of nursing personnel still exists, and

WHEREAS, there is particular shortage of nurses with preparation for leadership responsibilities, and

WHEREAS, nursing in public health depends upon development of nursing leaders, and

WHEREAS, preparation for such leadership is best provided in the university schools of nursing and, since the facilities of these schools are not being completely utilized, therefore be it

RESOLVED that the American Public Health Association lend its support to the Joint Committee on Careers in Nursing of the National League of Nursing Education in recruitment of students for university schools of nursing.

12. 1950 BIRTH REGISTRATION TESTING

WHEREAS, birth records and the statistics developed from them are essential for the planning, operation and evaluation of local, state, and national health programs, and

WHEREAS, improvement in registration completeness would increase the usefulness of the birth records for the efficient operation of these programs, and

WHEREAS, the successful promotion of complete registration depends on a knowledge of the status of such completeness by urban-rural and other characteristics for local areas and states

RESOLVED that the American Public Health Association considers it essential that a uniform nation-wide test of birth registration completeness be carried out to make available measures of registration completeness on local, state, and national levels, and that provisions be made to secure improvements in registration completeness.

14. MARRIAGE AND DIVORCE STATISTICS

WHEREAS, the American Public Health Association recognizes the need for more adequate marriage and divorce statistics, to provide much needed information on many aspects of the

health and well-being of the family, community, state, and nation; and

WHEREAS, these vital statistics of marriages and divorces can most feasibly be developed through the same channels as have proved effective for vital statistics of births and deaths, as part of the public health programs of the several states, with development of national statistics through coöperative state-federal relationships; now therefore be it

RESOLVED, that the American Public Health Association expresses its support for state centralization of marriage and divorce records and statistics and their integration with other vital records and statistics, and urges all states not yet operating such an integrated system to effect this urgently needed change at the earliest possible time; and be it further

RESOLVED that the American Public Health Association calls upon the National Office of Vital Statistics in the Public Health Service of the Federal Security Agency to take all steps possible for encouraging the development of systems of marriage and divorce records and statistics in every state that will make for maximum uniformity, comparability, and prompt availability of data, and for developing a program of detailed national statistics of marriage and divorce, based on national registration areas for marriages and divorces, adequate to meet the pressing needs for such vital statistics.

15. FAMILY HEALTH PROGRAM

WHEREAS, there is evidence of lack of balanced service to families by public health agencies in the community, and

WHEREAS, this lack of balance is accentuated by the allocation of subsidy moneys and nursing time for special projects, be it

RECOMMENDED, that the American Public Health Association direct its Committee on Administrative Practice, in conjunction with the Public Health Nursing Section and any other Sections as would be affected, to give consideration to the problem of securing a more balanced family health program, and to report as promptly as possible to the Governing Council.

17. SCHOOL LUNCH PROGRAM

WHEREAS, the service of nourishing noon meals at school is an important part of a program of health services and health education for children of school age; and

WHEREAS, the benefits of school lunches are freely available to all children only where public funds defray a substantial part of the cost of food, service, and administration, and

WHEREAS, federal, state and local appropriations during recent years have not increased sufficiently to keep pace with rising costs of food and labor for preparing luncheons, therefore, be it

RESOLVED that the American Public Health Association hereby endorses increased federal support under the National School Lunch Act and adequate state appropriations for matching federal funds and for the efficient operation of the program.

18. SUPPORT OF HEALTH EDUCATION AND PUBLICITY HEADQUARTERS

WHEREAS, for many years the National Publicity Council has been performing a real service in health education through the maintenance of the Health Education and Publicity Headquarters at the Annual Meeting of the American Public Health Association, and

WHEREAS, the upsurge in interest in health education techniques, programs, and materials on the part of health workers other than health educators has increased the extent and comprehensive nature of the work the

National Publicity Council has done, and

WHEREAS, although the American Public Health Association has met part of the cost of maintenance of the Headquarters, the bulk of the cost of this increase in work has had to be absorbed from the operation budget of the National Publicity Council, and

WHEREAS, because of the enormous value of this service to all of those engaged in educational work in public health, it is desirable that the Health Education and Publicity Headquarters at the Annual Meeting of the American Public Health Association should be continued. Therefore be it

RESOLVED that the Executive Board make every effort that the American Public Health Association meet the full cost of the Health Education and Publicity Headquarters; and that the Health Education and Publicity Headquarters be an Association-wide activity.

20. RECRUITMENT OF PERSONNEL

WHEREAS, the nation now faces a serious situation because of the shortage of public health personnel in all fields, and

WHEREAS, it is anticipated that in the near future more programs of public health will be established even in the face of an admitted lack of personnel, be it

RESOLVED that the American Public Health Association plan and establish an intensive national program of recruitment of public health personnel in all fields coöperating with such other interested agencies as it is deemed necessary, and be it further

RESOLVED that the American Public Health Association seek sufficient funds from all available sources to place this recruitment program on a sound basis.

21. RECOGNITION OF INCREASED FEDERAL APPROPRIATIONS FOR PUBLIC HEALTH IN CANADA

WHEREAS, the health of the Canadian people is of direct interest and vital concern to this Association and to the people of the United States, and

WHEREAS, federal grants-in-aid in the United States have constituted a device of proven value in extending public health services and stimulating planned hospital construction, at the same time equalizing the financial burden nationally, and

WHEREAS, the Government of Canada has embarked on a generous and far-reaching program of grants-in-aid to the Provinces for health surveys, general public health purposes, tuberculosis control, mental health care, venereal disease control, crippled children, professional training, public health research, cancer control, and hospital construction, therefore be it

RESOLVED that the American Public Health Association extends its hearty congratulations to the government and people of Canada for a step which makes the year 1948 memorable in the annals of public health on this continent.

HEALTH OFFICERS — 1948 INVENTORY

Are you planning to use the *Evaluation Schedule* to measure progress in 1948? Copies of the *Schedule* and the Guide to its use will be sent free upon request.

For a detailed study of your community sanitation program, ask for the new *Sanitation Evaluation Schedule.*

COMMITTEE ON ADMINISTRATIVE PRACTICE
AMERICAN PUBLIC HEALTH ASSOCIATION

TELEGRAM TO DR. MARTHA M. ELIOT FROM PRESIDENT TRUMAN

"It is my great pleasure to congratulate you, Dr. Dyer, Dr. Dubos, Dr. Waksman, Dr. du Vigneaud, Dr. Hawley and Dr. Magnuson, this year's winners of the Lasker Awards, and to convey to all of you the gratitude of the Government and that of millions of Americans for outstanding contributions to the health of our people.

"The foundation of a strong and healthy democracy depends largely on the ability of modern medicine and research to marshal its resources and to place them at the service of all the people. You as a group and individually have helped to fill these needs. You have all made contributions which have saved lives of untold thousands. The fact that the average expectancy of life has been increased a little more than six years from 1936 through 1946 is an example of what research, organization, and dissemination of new knowledge and drugs can do, and of what can be done in the future. If we attack diseases of the heart and circulatory system and cancer, which now account for over 55 per cent of the annual deaths of our people, through more research and control measures, new strides in human well-being will be made.

HARRY S. TRUMAN"

November 11, 1948

A.P.H.A. CREATES NEW SECTION ON MEDICAL CARE

A new section on Medical Care of the American Public Health Association was established by the Governing Council at the Annual Meeting in Boston on November 10. This Section will provide a medium for exchange of experience with respect to program content, administration, and technical aspects of the various fields of medical care, such as voluntary and public medical care plans, hospital services, group practice, chronic disease, and rehabilitation.

The officers of this section are:

Chairman—Edward S. Rogers, M.D., Dean, School of Public Health, University of California

Vice-Chairman—Edwin L. Crosby, M.D., Director, Johns Hopkins Hospital

Secretary—Milton Terris, M.D., Medical Associate, Subcommittee on Medical Care, A.P.H.A.

The members of the Section Council are: Dean A. Clark, M.D., Medical Director, Health Insurance Plan of Greater New York; Edwin F. Daily, M.D., Director, Division of Health Services, Children's Bureau; Herbert L. Lombard, M.D., Director, Division of Cancer and Other Chronic Diseases, Massachusetts State Department of Public Health; Ellen C. Potter, M.D., Deputy Commissioner for Welfare, New Jersey State Department of Institutions and Agencies; and Marian G. Randall, R.N., Executive Director, Visiting Nursing Service of New York.

GOVERNING COUNCIL ELECTS THREE HONORARY FELLOWS AT BOSTON

The governing Council of the American Public Health Association, on recommendation of the Committee on Eligibility, unanimously elected three Honorary Fellows at the Annual Session in Boston on November 10, 1948.

Brock Chisholm, M.D., Director General. World Health Organization, Geneva, Switzerland

V. Mary Crosse, O.B.E., M.D., Specialist in Prematurity of the City of Birmingham Department of Health, England

Karl Evang, M.D., Surgeon General of the Norwegian Public Health Service, Oslo. Norway

This brings to a total of 23 the Honorary Fellows elected to the American Public Health Association. These persons are distinguished public health workers who, with rare exceptions, live outside of North America.

The twenty Honorary Fellows elected in previous years are shown below with

the year each was added to the Honorary Fellowship roster.

George F. Buchan, M.D., London, England 1928
Hugh S. Cumming, M.D., Washington, D. C. 1936
Kendall Emerson, M.D., New York, N. Y. 1935
James Fenton, M.D., London, England 1931
Raymond E. Fosdick, LL.D., New York, N. Y. 1946
William M. Frazer, M.D., Liverpool, England 1942
Herbert C. Hoover, Palo Alto, Calif. 1923
William W. Jameson, M.D., London, England 1933
Thorvald Madsen, M.D., Copenhagen, Denmark 1926
Arthur Massey, M.D., Coventry, England 1944
E. R. A. Merewether, M.D., London, England 1942
Sir George Newman, London, England 1931
Sir John Boyd Orr, Aberdeenshire, Scotland 1942
Robert Hughes Parry, M.D., Bristol, England 1943
Gustavo Pittaluga, M.D., Havana, Cuba 1935
Charles Porter, M.D., London, England 1931
Sir Allan Powell, London, England 1931
Florence R. Sabin, M.D., Denver, Colo. 1947
René Sand, M.D., Brussels, Belgium 1946
Andrisa Stampar, M.D., Zagreb, Yugoslavia 1946

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Malcolm A. Bouton, M.D., M.P.H., 2039 Baker Ave., Schenectady, N. Y., Commissioner of Health
Guy G. Campbell, M.D., 232 Zamora Ave., Coral Gables, Fla., Recently Director General of Public Health for Ethiopia
Ricardo Cappeletti, M.D., Ministerio de Salud Publica, Montevideo, Uruguay, Director, Division of Hygiene
Elizabeth P. Fleming, M.D., 19 Wallis St, Beverly, Mass., Surgeon (R) (Ret.), U. S. Public Health Service
William V. Garnier, M.D., 203 Civil Courts Bldg., New Orleans, La., State Health Officer and President, State Board of Health
David D. Helm, V.M.D., Health Department, City Hall, Camden, N. J., Health Officer and Registrar of Vital Statistics
Theodore F. Hilbish, M.D., M.P.H., 5809 Chillum Gate Road, Hyattsville, Md., Asst. Chief, Tuberculosis Control Division, U. S. Public Health Service
Miles F. Kelly, M.D., 216 West 4th St., North Little Rock, Ark., Medical Director, North Little Rock City Health Dept.
Thaddeus D. Labecki, M.B., Box 310, Indianola, Miss., Director, Sunflower County Health Dept.
Charles-Henri Laurin, M.D., D.P.H., Immigration Detention Hospital, West Quebec, Que., Canada, Chief Administrative Medical Officer
Frederic F. Maloof, M.D., 178 Huntington Ave., Boston 15, Mass., Medical Inspector, Boston Health Dept.
George A. Miners, M.D., Box 308, Bemidji, Minn., Medical Director, District Health Unit 1
John S. Moorhead, M.D., M.P.H., Commissioner of Health, Charlotte Amalie, Virgin Islands
Eugene E. Taylor, M.D., Box 55, Mocksville, N. C., Health Officer, Davie-Stokes-Yadkin District Health Dept.
Roy J. Ward, M.D., 9 Bellevue St., Worcester, Mass., Epidemiologist, Worcester Health Dept.

Laboratory Section

Samuel R. Bozeman, Ph.D., State Department of Health, Lansing, Mich., Asst. Director, Biologic Products Division, Bureau of Laboratories
Ann S. Buck, A.M., 310 Beacon, Boston 16, Mass., Research Bacteriologist, Harvard Medical School
James W. Farrell, 19 Prospect St., Summit, N. J., Senior Technician, Fair Oaks Sanatorium
Marion Hood, D.Sc., Dept. of Pathology, Charity Hospital, New Orleans 12, La., Microbiologist
Jack Kasten, 2671-30th St., Long Island City, N. Y., Laboratory Asst., New York City Health Dept.
Wilfred C. Kennell, 2352 Augusta Ave., Fresno, Calif., Chief Public Health Technician, Fresno County Dept. of Public Health
Norman D. Levine, Ph.D., Coll. of Vet. Med., Univ. of Illinois, Urbana, Ill., Assoc. Professor and Asst. to Dean, Dept. of Veterinary Pathology and Hygiene
John P. Newman, D.V.M., Dept. of Bact.,

Michigan State College, East Lansing, Mich., Asst. Professor of Bacteriology

Carlos Quiros, M.D., 68 High St., Brookline, Mass., Student, Harvard School of Public Health

Lillian Robbins, M.S., 224 East 27 St., New York 16, N. Y., Senior Bacteriologist, Bellevue Hospital

Harry Schwachman, M.D., Children's Medical Center, Boston, Mass., Director, Clinical Laboratory

Victor N. Tompkins, M.D., Div. of Labs. & Research, State Health Dept., Albany, N. Y., Acting Asst. Director

Henry Turkel, M.D., M.A., 650 W. Boston Blvd., Detroit 2, Mich., Private Practice and Consultant on Bone Marrow Infusions

Catherine J. Witton, M.A., 300 The Fenway, Boston 15, Mass., Assoc. Professor of Biology, Simmons College

Statistics Section

Anita Bahn, 8808 Manchester Rd., Silver Spring, Md., Biostatistician, U. S. Public Health Service

Edith A. Hulshouser, Kapiolani Maternity Hospital, 1611 Bingham St., Honolulu, T. H., Medical Record Librarian

Robert Kohn, D.J., M.A., Dominion Bureau of Statistics, Ottawa, Ont., Canada, Statistician, Health and Welfare Section

William I. Lourie, Jr., M.P.H., 5500 Johnson Ave., Bethesda 14, Md., Biostatistician, U. S. Public Health Service

Mary Nunez, R.R.L., Memorial Hospital, Pawtucket, R. I., Chief Medical Records Librarian

Anthony E. Wilby, Provincial Dept. of Health, Parliament Bldgs., Fredericton, N. B., Canada, Asst. Registrar General

Roland E. Zook, M.P.H., 1606½ South Sixth St., Springfield, Ill., Special Research Analyst, Division of Services for Crippled Children, Univ. of Illinois

Engineering Section

L. T. Barnard, 200 S. Colorado, Midland, Tex., Senior Sanitarian, Midland, Ector and Howard County Health Unit

Reece Cantrell, 921 Commonwealth Ave., Waukegan, Ill., Junior Chemist, Abbott Laboratories

Donald D. Gold, Hydraulics Lab., Univ. of Florida, Gainesville, Fla., Research Asst. and Graduate Student

Louis H. Herschler, Board of Water Supply, Honolulu 1, T. H., Sanitary Engineer

Theodore A. Kolb, M.S., 1006 Woodlawn Ave., Columbia, S. C., Senior Sanitary Engineer, State Board of Health

Edward C. LaValley, M.C.E., Masonic Temple Bldg., Ithaca, N. Y., Director of Environmental Sanitation, Tompkins County Health Dept.

Edward W. Moore, A.M., 112 Pierce Hall, Harvard Univ., Cambridge 38, Mass., Assoc. Professor of Sanitary Chemistry, Harvard Graduate School of Engineering

Willard J. West, 488 Brookside Drive, Springville, Utah, District Sanitarian, Health District IV

Industrial Hygiene Section

Major Joseph R. Arsenault, 3530 Atwater Ave., Montreal, Que., Canada, Public Health Officer, Canadian Army

Raymond E. Masters, M.D., 1144 Broadway, East McKeesport, Pa., Physician, Westinghouse Electric Corporation

Jack C. Radcliffe, M.S., 411 Fort Dearborn Ave., Dearborn, Mich., Supervisor, Industrial Health Unit, Medical Section, Ford Motor Co.

Arthur J. Vorwald, M.D., Ph.D., 7 Church St., Saranac Lake, N. Y., Director, The Edward L. Trudeau Foundation

Food and Nutrition Section

Florence V. Cavanagh, 745 Massachusetts Ave., Boston 18, Mass., Dietitian, Boston City Hospital, South Dept.

Pablo Liendo-Coll, M.D., 33-20 72nd St., Jackson Heights, N. Y., Chief Physician, Nutrition Dept., Instituto Nacional Administracion

Chester A. Newhall, M.D., 72 Colchester Ave., Burlington, Vt., Assoc. Professor and Chairman, Department of Anatomy

Eduardo Paez-Pumar, Jr., M.D., Calle Chapellin Qtz. Masparro, La Florida, Caracas, Venezuela, S. A., Instructor, Universidad Central de Venezuela

Maternal and Child Health Section

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Public Health Education Section

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Blanche L. George, International House, 500 Riverside Dr., New York, N. Y., Student, Columbia School of Public Health

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Tin An Hu, M.D., c/o Dr. Loh, 103 Townsend St., Roxbury, Mass., President, National Kiangsu Medical College (China)

Andie L. Knutson, Ph.D., Office of Health Education, U.S.P.H.S., Washington, D. C., Chief, Research and Evaluation Section

Mary Jo Kraft, Tuberculosis Control Div., U.S.P.H.S., Washington 25, D. C., Health Educator

B. G. Loveless, Court House, Dallas, Tex., Health Educator, Dallas County Health Dept.

Fidel A. Maciel-Crespo, M.D., Calle 47-316, LaPlata, Argentina, S. A., Professor, Facultad de Medicina de La Plata

James C. McCullough, Rm. 605, 600 W. 168th St., New York, N. Y., Research Asst., Columbia University

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Merwin L. Noble, M.P.H., 3200 Humphrey Ave., Richmond, Calif., Health Educator, Richmond Health Dept.

Ivan B. O'Lane, M.P.H., 4417 Williams Ave., Seattle 99, Wash., Recently completed studies at University of Michigan School of Public Health

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Dental Health Section

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Practice and Fellow, New York University
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Medical Care Section

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John P. Peters, M.D., 789 Howard Ave., New Haven 11, Conn., John Slade Ely Professor of Medicine, Yale Univ. School of Medicine
Stanley H. Saunders, 31 Canal Street, Providence, R. I., Exec. Director, Hospital Service Corporation of Rhode Island

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Carlyle F. Stout, M.D., 123 Lincoln St., Framingham, Mass., Asst. Surgeon, U. S. Public Health Service; Clinical Fellow in Medicine, Massachusetts General Hospital
Eugene J. Taylor, M.S., The New York Times, Times Square, New York 18, N. Y., Editorial Staff (Medicine and Public Welfare)
Richard C. Williams. 221 North President Street, Jackson, Miss., Exec. Director, Mississippi Hospital and Medical Service

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Lions Club in A.P.H.A.

At the 76th Annual Meeting of the American Public Health Association in Boston, a Lions Club from the membership of the A.P.H.A. was organized. The Chairman selected was Leonard C. Murray, Director of Health Education, Iowa State Health Department. It is planned that this group will meet each year in connection with the Association's Annual Meeting. Lions in the Association are reported by its Chairman to number about 60.

A.P.H.A. membership application blank on page XXXIII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Dentist-public health for new program in urban and rural communities served by County Health Department. Experience and graduate training in public health desirable. Salary $6,600 to $8,172. Write: Health Officer, Alameda County Health Department, San Leandro, Calif.

Assistant Public Health Engineer for suburban part-county health district 310,000 population. Rural and urban problems in all fields of public health engineering. Sanitary engineering degree and two years of public health engineering experience, or equivalent required. Competitive state civil service position. Salary $2,910 to $3,750 plus emergency compensation based on BLS index, amounting to $705 in 1947. Write: Westchester County Department of Health, White Plains, N. Y.

Health Officer needed for town of 28,000 convenient to medical and cultural centers. Salary minimum $6,000 plus car allowance. Write: Board of Health, Milford, Conn., for application.

Health Officer for DeWitt-Piatt Bi-County Health Unit. Central Illinois counties half way between Chicago and St. Louis. Population 35,000 largely rural. Salary range $7,200–$9,000. Write: Hal E. Gronlund, D.D.S., President, Board of Health, 202½ East Side Square, Clinton, Ill.

Health Officers — opportunities for young physicians. Previous experience and training desirable but not essential. Must be licensed or eligible for licensure in Virginia. Salaries $5,736 to $7,098 plus car allowance and official expenses. Advancement opportunities within the organization. Write: State Department of Health, Richmond, Va.

Medical Assistant Director for a 250 bed university affiliated hospital in the process of expanding to 325 beds; rare opportunity for one interested in administration, assisting in a detailed survey of medical care in the community and helping set up a medical care program for the community. Salary $6,000–$7,000. Write: Box A-38, Employment Service, A.P.H.A.

M.D. Technical Director for a large non-profit blood bank in New England. Activities include technical supervision of blood collection by Mobile Units and in a fixed center, direction of the laboratory processing of blood, medical and lay education on the need and uses of whole blood in medical practice. Please submit complete personal description and qualifications in first letter. Write: Box A-39, Employment Service, A.P.H.A.

Microbiologist for teaching and research in eastern university medical center. Ph.D. or M.D. required. Please state training and experience. Write Box A-40, Employment Service, A.P.H.A.

Nurses—Opportunity for several in expanding generalized program. Completion of approved course in public health nursing required. Rural and urban experience offered. Some cars are available. Salary $3,000 to $3,696. Write: Director of Public Health Nursing, Alameda County Health Department, San Leandro, Calif.

Two Staff Nurses for Sutter-Yuba Health Department, Central California. Salary $250–$310 monthly. Write: Dr. C. A. Scherer, County Health Officer, 309 C Street, Marysville, Calif.

Nurses—Salary $221–$269. Maintenance deduction $31. Three weeks vacation, sick leave, pension, 12 holidays, 48 hour week, divided hours, rotating shifts. Requirements: Wisconsin registration, under 50 years. Send picture with first inquiry. Write: Supt. of nurses, Wisconsin State Sanatorium for Tuberculosis, Statesan, Wis.

Supervisors of Public Health Nurses, Baltimore County Health Department. Population 248,000; suburban, industrialized and rural areas; county seat 8 miles from Baltimore. Generalized service. Degree and experience required. Salary $3,100 to $3,600; for additional preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, $3,400 to $3,900. Also **Public Health Nurses** beginning salary $2,300 (for trainee) to

$2,700 depending on qualifications; increases to $3,300. One month's vacation; 5 day, 35½ hour week; sick leave; retirement plan. For use of personal car, 7¢ mileage. Write: Dr. Wm. H. F. Warthen, Health Officer, Baltimore County Health Dept., Towson 4, Md.

Qualified Public Health Nurse for suburban Westchester County, 45 minutes from New York City. Service integrated with Nursing Division of Westchester County Health Department. Bedside and teaching program. Write: P. O. Box 280, Mamaroneck, N. Y.

Nurses are needed for public health work in Texas. Public Health Nursing salary ranges: Director, Nursing Service $287.50–$300 per month; Senior $240–$265 per month; Junior $205–$230 per month; Graduate Nurse $165–$190 per month. Car allowance of approximately $600 per year in addition, Merit System and Retirement plan in effect. Write: George W. Cox, State Health Officer, Austin 2, Tex.

Two Public Health Nurses for staff positions in general public health program in new and enlarging health department in interesting county in South Eastern Michigan. Close to two large university teaching centers in Public Health Nursing. Salary based on public health experience and training. County pension plan, vacation and sick leave policy. Must have an automobile, but mileage is furnished. Write: Director, Macomb County Health Department, County Building, Mt. Clemens, Mich.

School Nurse with training and experience in school health education and public health. State age, experience, education, and salary desired. Write: Board of Education, 221 West Lead Avenue, Albuquerque, N. M.

Public Health Nursing Consultant in Pediatrics; $4,150 to $4,902. Public health nurses—$3,397 to $4,150. Graduate nurses to train for public health nurses $2,645 to $3,397. Liberal federal government retirement plan; 40 hour, 5 day week; 26 days annual leave; advancement; opportunities for study and cultural development in the nation's capital. Write: Mrs. Josephine P. Prescott, Director, Bureau of Public Health Nursing, District of Columbia Department of Health, Washington, D. C.

School Nurse, starting salary $2,000. Experience or formal education in the field of public health. Write: Robert A. Weston, Jr., M.D., Acting Health Officer, Milford Department of Health, Milford, Conn.

Assistant Sanitarian for city and county generalized program with emphasis on food and milk sanitation. Degree, training, and experience required. Salary range $2,800 to $3,000; travel allowance 6¢ a mile. Retirement plan; sick leave; liberal vacation. Write: Ottawa County Health Department. Court House, Grand Haven, Mich.

Staff School Nurse for small, well organized school health department, Pacific Coast. Salary about $2,850; 35 hour week; 9 calendar months including 2 weeks' vacation Christmas, one week Easter. Annual increment for 10 years, tenure after 3 years. B.A. and P.H.N. degrees, own car. Send photograph, age, degrees, training and experience, marital status, number of children. Write: Box A-41.

The Illinois Civil Service Commission is giving an examination for vital statistics registrar in the State Department of Public Health. Salary range $3,600–$4,800. State residence is not necessary. Duties include directing the state-wide registration of accurate birth and death records, and responsibility for supervising a large clerical staff in the management of vital records. Knowledges tested in the examination will include vital statistics laws and regulations, public health statistics, public health administration, and general administration and supervision. Apply before February 5, to : Illinois Civil Service Commission, 501 Armory Building, Springfield, Illinois.

POSITIONS WANTED

Bacteriologist, Ph.D., with 10 years' academic, army, and virus and TB research experience desires laboratory or teaching position in midwestern hospital, small university, or state health department. Write Box 1-D2, Employment Service, A.P.H.A.

Technician — medical, experienced in both hospital and research laboratories. Prefers position in Air Medicine or with Blood Bank or Center, or would like to get into Public Health. Will consider territorial or foreign assignment. Write: Box L-5, Employment Service, A.P.H.A.

Health Educator, M.A. in health education (Teachers College, Columbia) 32, male, married. Two years' working experience in health education with official and voluntary agencies including teaching; 5 years army officer in charge of group and public relations work in Special Service Division. Interested in position

with official or voluntary agency or teaching. Write Box HE-7, Employment Service, A.P.H.A.

Health Educator, M.P.H., female, white, 5 years' teaching experience on secondary level in a large city school system; one and half years as a supervisor at a municipal social hygiene clinic VD patient education program; one year as a social worker with a public county welfare department. Interested in school health and community organization either with a voluntary or public agency. Write: Box HE-8, Employment Service, A.P.H.A.

Medical Administrator, M.D., (Rush), M.P.H. (Harvard), male, 40, married. Twelve years' experience in public health work including local health administration (state and city) epidemiology, teaching of preventive medicine, army preventive medical services; 3 years' hospital training including radiology and pathology. Currently employed but interested in opportunity with greater responsibility and challenge. Minimum salary considered $10,000 to $12,000 depending on locality. Extensive traveling undesirable. Write Box C-8, Employment Service, A.P.H.A.

Public Health Physician, age 40, seeks appointment with Student Health or Health Department. Experienced and trained in all phases of public health work. Excellent references. South preferred. Will consider foreign appointment. Personal interview can be arranged. Give salary and particulars. Write Box Ph-10, Employment Service, A.P.H.A.

OPPORTUNITIES

Kentucky needs public health workers. There are vacancies for doctors, nurses, and other personnel both in the State Health Department and in County Health Departments. Salaries are open, depending upon qualifications. Write: Bruce Underwood, M.D., State Health Commissioner, Kentucky State Department of Health, 620 South Third Street, Louisville 2, Ky.

ANNOUNCEMENT OF POSTGRADUATE FELLOWSHIPS

Research

Research fellowships are available in Virology, Orthopedic Surgery, Pediatrics, Epidemiology, and Neurology. These fellowships are intended to emphasize: (1) advanced training in the basic sciences as they apply to the particular specialty and to research, and (2) experience in research, which need not be immediately related to poliomyelitis.

Eligibility requirements: M.D. (or when appropriate, a degree of Ph.D.); a minimum of two years of training on the residency level in the specialized field; presentation of an appropriate program of study and investigation; United States citizenship; sound health as attested by a physical examination.

Physical Medicine

Clinical fellowships are available to physicians who wish to prepare for eligibility for certification by the American Board of Physical Medicine.

Eligibility requirements: Graduation from a Class A school of medicine; completion of a rotating internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the A.M.A.; license to practise medicine in one or more states; citizenship in the United States; sound health as attested by a physical examination; age limit: 40.

Public Health

Fellowships are available to physicians for one year of postgraduate study leading to a Master of Public Health degree at a school of public health approved by the American Public Health Association.

Eligibility requirements: Graduation from a Class A school of medicine; completion of an internship of not less than one year in a hospital approved by the Council on Medical Education and Hospitals of the A.M.A.; license to practise medicine in one or more states; citizenship in the United States; sound health as attested by a physical examination.

Application may be made to the National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y., at any time during the year. Selection of candidates will be made on a competitive basis by committees composed of specialists in each field. Awards are based on the individual need of each applicant.

Announcement of Regular Corps Examination for Dietitians

United States Public Health Service

A competitive examination for appointment of dietitian officers in the Regular Corps of the U. S. Public Health Service will be held on February 28, 1949, at various points in the United States.

Appointments are permanent in nature and provide opportunities for a lifetime career in the field of dietetics at Marine Hospitals and other Public Health Service facilities.

Appointments will be made in the grades of Junior Assistant (2nd Lt.), Assistant (1st Lt.), and Senior Assistant Dietitian (Captain). Annual entrance pay is from $2,955.50 to $4,489.00 as determined by the grade of appointment and existence of dependents. All applicants must be graduates from an approved college and have a baccalaureate degree in the field of dietetics.

Additional information and application forms may be obtained by writing to:
Surgeon General, U. S. Public Health Service, Washington 25, D. C.
Attention: Division of Commissioned Officers.

Regular Corps Examination for Nurse Officers

United States Public Health Service

A competitive examination for appointment of nurse officers in the Regular Corps of the U. S. Public Health Service will be held on March 17, 1949, at various points in the United States.

Appointments are permanent in nature and provide opportunities for a lifetime career in the fields of clinical and public health nursing at Marine Hospitals, and in a variety of public health program.

Appointments will be made in the grades of Junior Assistant (2nd Lt.), Assistant (1st Lt.), and Senior Assistant Nurse Officer (Captain). Annual entrance pay is from $2,955.50 to $4,489.00 as determined by the grade of appointment and existence of dependents. All applicants must be registered nurses with a baccalaureate degree from an approved school of nursing. (Past nursing experience in the Army, Navy, or Public Health Service may serve, in certain instances, in lieu of academic degree.)

Additional information and applicaton forms may be obtained by writing to:
Surgeon General, U. S. Public Health Service, Washington 25, D. C.
Attention: Division of Commissioned Officers

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Public health physician to direct new program; well staffed department; California. (b) Medical director; public school system, having more than 80 schools, school population of nearly 70,000; city of 400,000; university medical center; West. (c) District health officer; duties consist of directing county health department and developing program; $8,000–$9,000; Pacific Coast. (d) Medical director, health service of national organization; $7,200–$9,000; headquarters, metropolitan area. (e) Several physicians qualified in general public health or one of the clinical specialties; opportunities also for physicians interested in obtaining public health training; positions of varying responsibility in city and county health departments; salaries depend upon qualifications, ranging from $5,650 to $10,000; East. (f) Assistant health officer; county health department; headquarters in college town of 25,000; Southeast. PH1-1 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Director of division of dental health and operator of dental mobile unit equipped for dental work in rural area; state department of health; headquarters in winter resort city, South. (b) Public health dentist; work primarily with school children, examinations, sodium fluoride treatments, promoting dental health education program; $6,000. PH1-2 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Health education coördinator; county health department; newly created position; Southern California. (b) Sanitary engineer; municipal health department; headquarters, university medical center; West. (c) Public health engineer; state department of health; considerable experience required; $3,200–$4,500. (d) Sanitary chemist; enlarged research program; university medical center; Middle West. (e) Health educator; municipal tuberculosis society; one of the largest cities east of the Mississippi; opportunity for developing services. PH1-3 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

WANTED—(a) Assistant director; voluntary organization having staff of six field nurses; college town of 50,000; East. (b) Public health nurse supervisor and, also, several public health staff nurses; headquarters in university medical center; Pacific Coast. (c) Public health nurse to conduct rheumatic fever program; project supervised by three counties; headquarters, university medical center. (d) Public health nurse to serve as executive secretary, health organization; duties include conducting survey; Middle West. (e) Public health nurse, qualified in teaching; new program in nursing education; fairly large city in one of the Latin American countries; $4,200. (f) Public health supervisor to establish and conduct county unit; headquarters in small town, short distance from several large cities. (g) Public health nurse for teaching position with voluntary health agency offering bedside nursing care and family health service to large city and surrounding area; East; $3,900–$4,200. (h) Public health nurse for position as field representative, voluntary health association; duties include public relations, editing publications, health education; winter resort town; South. (i) Coördinator of training; preferably candidate with Master's degree in public health and four to five years' experience; $5,000. PH1-4 Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago 11.

Advertisement

Opportunities Wanted

Physician distinguished in the field of public health medicine; B.S., M.S., M.D., D.P.H. degrees, leading schools; enviable career of successful experience in academic and administrative public health work; recognized as able leader; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary engineer; B.S. in Civil Engineering with sanitary option; considerable work towards Master's degree in public health engineering; eight years, director of sanitation, state health department, four years, sanitary engineering in foreign fields; for further information, please write Burneice Larson, Director, Palmolive Building, Chicago 11.

Health educator; A.B., M.S.P.H., eastern university; several years' teaching experience: Bacteriology, Physiology, Hygiene, Education; four years, health educator, county health department; three years, health coördinator, liberal arts college; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Dentist; six years, military service; since receiving discharge on temporary appointment; 12 years, private practice during which time he served as public health dentist on part-time basis; before entering military service, several years' teaching experience; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Sanitary chemist; Ph.D.; four years, assistant professor of biology, midwestern college; past five years, consultant chemist, midwestern city where his duties include research in water and sewerage treatment; simultaneously has been holding important teaching appointment; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

Public health nurse; Master's degree, major in public health supervision; six years, staff nursing, rural and city health departments; six years, supervisor, municipal department of health; seeks administrative position in education, tuberculosis, or public health nursing; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago 11.

NEWS FROM THE FIELD

Stone Heads National Advisory Committee on Local Health Units

Officers for the year 1949 were elected by the National Advisory Committee on Local Health Units at a meeting in New York on December 2. Thus, a committee which has been functioning on an interim basis under the sponsorship of the National Health Council for a year, was fully organized. James Stone, program director of the National Tuberculosis Association, was made chairman to succeed Philip Mather, President of the National Health Council, who has served as chairman pro tem. Dr. G. F. Moench, Health Chairman of the Congress of Parents and Teachers, is vice chairman, and Martha Luginbuhl, Research Assistant of the A.P.H.A.'s Subcommittee on Local Health Units, secretary. A new agency, the National Sanitation Foundation, was welcomed to the committee, which now has representation from 51 national agencies. Of these, 28 are citizen agencies and 23 voluntary health and allied agencies.

An executive committee, including the officers serving ex officio, was chosen as follows:

Haven Emerson, M.D., Chairman, Subcommittee on Local Health Units
Mrs. Stephen Francisco, Public Welfare Chairman, General Federation of Women's Clubs
Harold Friermood, Secretary Health and Physical Education, National Board, Young Men's Christian Association
Mrs. Dorothy Hamilton, National Urban League
Harold Nutter, Lion's International
Joseph V. Tobin, American Federation of Labor

At this meeting Dr. Haven Emerson reviewed the progress of the local health units program from its inception with the A.M.A. and A.P.H.A. resolutions of 1942. Among the developments he reported were resolutions from about a dozen of the committee agencies urging the support of community activities for better local health services; the growth of state health councils; the discussion of the local health units program in the house organs of the various agencies; the programming of this project in national agency meetings, the leadership of voluntary or civic agencies in developing local public opinion—the tuberculosis association in one place, the A.M.A. Women's Auxiliary in another, Lion's International in another, League of Women Voters in still another, and many others; the sponsorship of the Local Health Services Bill of 1948 by the National Congress of Parents and Teachers, and its plans for reintroduction in the 81st Congress; the growing provisions for state aid to local health services as in California, which passed a state aid law in 1947 and backed it up with a $3,000,000 appropriation and provisions for minimum standards as a prerequisite for aid; the growth of consolidated health districts in many states, notably Florida and Michigan, and the resolutions of the Local Health Units Section of the National Health Assembly. These and many others show "a definite spirit of excitement quite in contrast to the inert attitude of 7 or 8 years ago."

Dr. Emerson pointed out that 44 of the 48 state legislatures would meet in 1949 and that this was therefore the crucial year for catching up on legislative lags—permissive health unit legislation in some states, and addition to or clarification of such legislation in others, definite provision for state aid in many, removal of salary ceilings in several, most notably Kentucky. He urged every national agency to keep its

state and local branches alerted to the status and significance of legislation in their own states.

Reported also was a local health units story to appear in *Colliers Magazine* of January 22. This was planned and written by a free lance writer who saw its possibilities and without special "inside" influence from the committee. Another free lance writer is exploring the same idea with a monthly popular magazine. These are the signs, according to Dr. Emerson, that indicate national recognition of the importance of the Princeton group who are now the facilitating agencies for carrying this program to its goal.

Among the actions taken by this meeting through resolution, formal motion, or common consent were the following:

1. Creation of a subcommittee on educational materials which would evaluate existing pamphlets on what to expect of a community health department and what is needed to get one, and to prepare further educational aids if they are found to be necessary. In this project close coöperation may be expected from the U. S. Public Health Service. A need was expressed particularly for a very short and simple outline that would be universally read and understood by club members. The members of this subcommittee, appointed by the Chairman, Mr. Stone are:

Mrs. Dwight Perrin, Chairman, Board Member, American Social Hygiene Association
H. M. Graning, M.D., Director of Local Health Services, U. S. Public Health Service
Mrs. Irmagene Holloway, Health and Safety Chairman, National Federation of Business and Professional Women's Clubs
G. F. Moench, M.D.
Lee A. Rademaker, M.D., Member-at-Large, National Advisory Committee on Local Health Units
Mrs. Roy Weagly, President, Associated Women of the American Farm Bureau Federation

2. Commendation to the National Health Council staff for the two regional conferences already held and a recommendation that others be planned at suitable times and places, particularly in relation to regional and state public health association meetings.

3. Reaffirmation of last year's resolutions calling upon all the agencies to use appropriate means within their power to get coverage of the entire nation with local health units under competent direction.

4. Reëndorsed the resolution of last year, "that representatives at this meeting, in their individual capacities, recognize the necessity for federal assistance to states to complete the coverage of their respective populations and areas with full-time local health units under professional direction."

5. The Congress of Parents and Teachers was commended for its plan to reintroduce the Local Health Services Bill of 1948 in the 81st Congress.

6. The *Bulletin on Local Health Units* should be continued, approximately on a monthly basis.

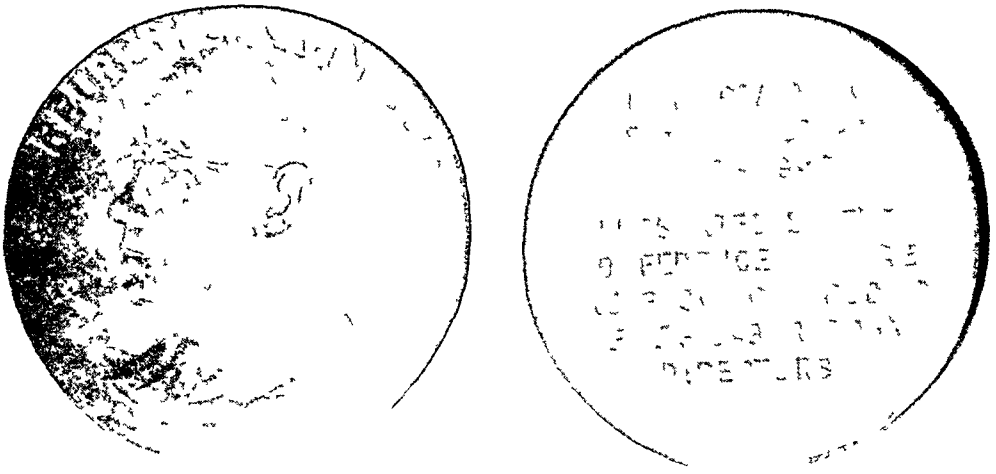
7. A vote of appreciation to Haven Emerson, M.D., for his fruitful leadership of six years in this program.

8. The Secretary was instructed to record in the official minutes of the meeting a statement expressing deep appreciation of the group for the expert leadership given by Philip Mather to the National Advisory Committee on Local Health Units during this strategic period of early development and organization.

MICROBIOLOGICAL INSTITUTE IN NATIONAL INSTITUTES OF HEALTH

Plans for a Microbiological Institute in the National Institutes of Health, U. S. Public Health Service, were announced in October. In his announcement, Assistant Surgeon General R. E. Dyer, director of the National Institutes said: "The concentration of cancer, heart, and dental research in special institutes has made it necessary to regroup within the Microbiological Institute and the Experimental Biology and Medicine Institute, which was established last December, important research dealing with such diseases as malaria, polio, typhus, and the common cold, and a number of basic research studies in such fields as physics, chemistry, nutrition, metabolism, and pathology. This enables work in these diseases and fundamental research to go forward with the same intensified effort being given to cancer, heart, and dental problems."

PUBLIC HEALTH LABORATORY DIRECTORS HONOR DR KAHN



The Conference of State and Provincial Public Health Laboratory Directors meeting in Boston November 7 at the time of the 76th Annual Meeting of the American Public Health Association devoted their 28th Annual Dinner to honor Dr. Reuben L. Kahn in commemoration of the 25th Anniversary of the first demonstration of the Kahn reaction. This was presented on October 10, 1923, in Boston before the 52nd Annual Meeting of the American Public Health Association.

The dinner which was presided over by Dr. I. H. Borts of Iowa City had as master of ceremonies Dr. F. R. Hassler of Oklahoma City. Dr. Kahn described his work with the serological test for syphilis and presented among others Miss Elizabth B. McDermott who has long been his associate.

Also in commemoration of this anniversary, the *Journal of the Michigan State Medical Society* devoted its October, 1948, issue to honoring Dr. Kahn, with scientific articles on the test and a bibliography of Dr. Kahn's books and articles, consisting of 170 titles.

The Conference of State and Provincial Public Health Laboratory Directors presented Dr. Kahn with a medallion bearing a relief portrait on one side and the commemoration of the 25th anniversary of the Kahn reaction on the other.

COURSE ON VIRUS RESEARCH

The Department of Microbiology of New York University College of Medicine announces an intensive course in the theories and techniques of virus research to be given from March 21 to June 3, 1949. The course, which is expected to occupy the full time of the student, will include lectures, laboratory work, and discussion Credit for two full courses will be given by the Graduate School of New York University. The laboratory work will include the techniques currently used with bacterial and mammalian viruses such as. methods of cultivation, purification. concentration, and assay of viruses, their serological reactions, and the hemagglutination. Because the number of students is limited to 12. early application

is recommended. Further information may be obtained from the Department of Microbiology, 477 First Avenue, New York 16, N. Y.

WESTERN BRANCH A.P.H.A. ACTIVITIES

Walter S. Mangold, the Secretary of the Western Branch, A.P.H.A., with offices at the School of Public Health, University of California, Berkeley, has announced that the 1949 Annual Meeting of the Western Branch will be held in Los Angeles with headquarters at the Biltmore Hotel, May 30–June 1, 1949. Special efforts are under way to make the program outstanding and the exhibit will be emphasized at the forthcoming meeting.

Mr. Mangold has announced the appointment, by George M. Uhl, M.D., President of the Western Branch and Health Officer of Los Angeles City, of the following committee chairmen:

Richard A. Koch, M.D., *Finance Committee*
Ellis Sox, M.D., *Membership Committee*
Charles M. Carpenter, M.D., *Program Committee*
Dorothy B. Nyswander, Ph.D., *Publications Committee*
Walter H. Brown, M.D., *Constitution Committee*

A News Letter to the members of the Western Branch is planned to acquaint all concerned with Western Branch activities.

Mr. Mangold announces that the 1948 *Annual* with the papers from the Salt Lake City meeting of the Western Branch in 1948 will shortly be published.

Mrs. Alice Harris, Berkeley, Assistant to the Secretary has been employed on a full-time basis as of October 1 to maintain continuity in the Branch office.

REORGANIZATION OF PITTSBURGH HEALTH DEPARTMENT

In October, 1948, the U. S. Public Health Service delivered to Mayor Lawrence of Pittsburgh (Pa.) a study of that City's Health Department, made by the Service under the direction of E. R. Coffey, M.D., medical director of District 1 of the Service.

Mayor Lawrence has reported that he will use the study as a guide in reorganizing the department. Several steps in the reorganization process have already been taken. In September, Erwin C. Drescher, Senior Surgeon, U. S. Public Health Service, became consultant to the Pittsburgh Health Department with a specific request by the Mayor for advice on the reorganization.

In the field of environmental sanitation, Herbert J. Dunsmore, formerly public health engineer of the Battle Creek-Calhoun County (Mich.) Health Department became Pittsburgh's Public Health Engineer in charge of all food, milk, housing, and other sanitary services of the department. Simultaneously, the Standard Restaurant Ordinance of the U. S. Public Health Service was adopted by the Pittsburgh City Council after a 9 month study during which Council members had visited St. Louis and other cities to see firsthand the operation of the grading and placarding system. Placarding will begin in Pittsburgh in January, 1950. In September, also, food inspectors were given an intensive 2 week training course by a training team of the U. S. Public Health Service.

Also in September, Janice Mickey, former director of public health nursing of the Rochester-Olmsted County (Minn.) Health Department, became Chief of Pittsburgh's Bureau of Public Health Nursing Services.

These new appointees and others of the Pittsburgh staff will lecture at the University of Pittsburgh as a part of the program of establishing a close relationship between the University Medical Center and the City Health Department.

RED SQUILL REFERENCE POWDER AVAILABLE

Although red squill is now readily

available for use in rodent control, difficulties have arisen because of the variable potency of separate batches. To help resolve these difficulties, the National Pest Control Association has developed a "tentative red squill reference powder" for testing the strength of squills. Test sets may be obtained from the National Pest Control Association, 3019 Ft. Hamilton Parkway, Brooklyn 18, New York, $2 per test; $1 in quantities of six or more.

CHICAGO SURVEY OF Q FEVER

Representatives of management and labor in the meat and dairy industries met at the Chicago Health Department recently to arrange for the collection of 1,000 blood samples for a survey of Q fever in the city, particularly to determine whether the disease is an occupational hazard to livestock workers.

For the survey Chicago City Health Department teams are collecting blood samples from packinghouse, slaughterhouse, and rendering plant workers and workers on dairy farms, at raw milk receiving stations and pasteurization plants. Although no cases diagnosed as Q fever were reported in 1947 or in 1948, 30 cases were reported among Chicago packinghouse workers in 1946.

MILK AND FOOD SANITATION RESEARCH SYMPOSIUM

A two day symposium on recent research in milk and food sanitation is being sponsored by the Sanitation Study Section of the Division of Research Grants and Fellowships, U. S. Public Health Service, January 26–27, 1949, to be held in the auditorium of the U. S. Department of Commerce, Washington, D. C. The program calls for a discussion of milk and related topics on January 26 and of other foods on January 27. Further information may be obtained from Henry L. Roahrig, Executive Secretary of the Sanitation Study Section in Washington.

HEALTH CONSERVATION FOUNDATION PROPOSED

A group of four men in Philadelphia —S. S. Huebner, Wharton School of Finance; William Harvey Perkins, M.D., Dean of Jefferson Medical School; William G. Schmidt, and E. Burke Wilford —are the founders of a proposed Health Conservation Foundation to make "preventive medical care available to the average person in America. The goal to be envisioned is preventive medicine for every American by 1970 at least." The argument they present to life insurance companies, which constitute their first line of attack, is that if fire insurance companies can spend, as they do, an average of 5 per cent of their gross premium on fire prevention education, life insurance companies should be able to spend one per cent of premium income on preventive medicine.

The immediate objectives as outlined by Mr. Wilford are:

1. To educate the medical profession in the necessity and administration of successful periodic examinations.
2. To raise $500,000 annually for expansion of chairs of preventive medicine in American medical colleges.
3. To study and perfect periodic medical examinations.
4. To urge the life insurance industry to earmark money for the use of policy holders in health conservation. A goal of at least 100 million dollars annually has been set.
5. To keep the individual and the doctor relation on an American basis and to improve this relation constantly.

The pamphlet *How to Make Individual Preventive Medicine Economically Possible* and other information are available from Health Conservation Foundation, Wilford Building, Philadelphia 4, Pa.

MENTAL HYGIENE UNIT HONORS PEDIATRICIAN DR. ALDRICH

C. Anderson Aldrich, M.D., Director of the Rochester Child Health Institute of the Mayo Clinic, Rochester, Minn., has won the Lasker Award of the Na-

tional Committee for Mental Hygiene for 1948. The winner received on November 4 the fifth annual prize in this field from Dr. George Baehr, President of the New York Academy of Medicine, at the committee's 39th annual luncheon in New York. Dr. Aldrich was cited for "outstanding accomplishments in the education of the physician in the psychological aspects of the practice of medicine."

As organizer four years ago of the Rochester Child Health Institute, Dr. Aldrich designed a preventive psychiatric and "well-child" service for children in a community of 30,000. In conjunction with the Mayo Foundation, he developed a training program in pediatric mental health. The program was said to have expanded and improved existing local facilities instead of developing new agencies.

SONOMA'S NEW HOME

The Health Department of Sonoma County, California, serving about 85,000 persons, moved into its new home recently. *California Health* reports the building was made possible through the plans presented to the board of supervisors by the health officer, Edith Young, M.D. When an additional $5,000 was needed to complete construction the Elks Lodge stepped forward and later equipped the plant and dedicated it. It was officially opened with a community party given by the citizens.

Described as a spacious, light, H-shaped building, it is located on the county hospital grounds. One wing houses an auditorium and the headquarters of the county tumor board. It also has a fenced-in outdoor play area for children immediately adjacent to the child health conference waiting room.

PALO ALTO DECIDES TO COÖPERATE

Palo Alto, Calif., with a 1940 population of less than 20,000 recently voted to combine its health services with those of Santa Clara County. Louis Olsen, the former Palo Alto Health Officer, is now Assistant Health Officer of the county. The contract for joint services became effective on August 1 and was recommended by the California State Health Department. The County Health Department now serves more than 100,000 persons. San Jose with more than 75,000 population maintains its separate city health department.

TUBERCULOSIS MANUAL FOR PUBLIC HEALTH NURSES

The Massachusetts State Department of Health recently issued a manual on tuberculosis control for public health nurses. The 94 page loose-leaf publication, prepared by Helen C. Reilly and Beatrice H. Ditto of the Bureau of Public Health Nursing, with the collaboration of Dr. Alton S. Pope of the Division of Tuberculosis, has a special chapter on the mass surveys that have been conducted in coöperation with the Massachusetts Tuberculosis League since 1942. Single copies are available for limited distribution.

AMERICAN UNION OF INDUSTRIAL MEDICINE

The Association has been informed that at the last meeting of the Argentine Congress of Industrial Medicine held in Buenos Aires in May, 1948, it was decided to establish the Union Americana de Medicina del Trabajo (American Union of Industrial Medicine) and that already eleven American countries are affiliated in the Union.

The purpose of the Union is to study the specialty of industrial medicine, to aid in propagating knowledge among medical and technical persons of the Americas, to stimulate the interchange of scientific publications and information, and to organize in alternate years an American Congress in one or another of the American countries.

The permanent General Secretary

named at the last meeting is Dr. Jose Pedro Reggi of Argentina, Arenales 981, Buenos Aires. A magazine, *Medicina del Deporte y del Trabajo,* is being published and a library has been established in this specialty.

According to Dr. Reggi, plans are being laid for the next meeting to be designated as the First American Congress of Industrial Medicine, to be held in Buenos Aires during October, 1949.

The American Union of Industrial Medicine wishes to establish personal and scientific relations with the members of the American Public Health Association, and they have filed with the Association office this information regarding the organization and constitution of the Union. North Americans are invited to attend the First Congress.

UNITED MINE WORKERS OF AMERICA WELFARE AND RETIREMENT FUND ALLOCATES REGIONAL STAFF

The United Mine Workers of America Welfare and Retirement Fund, Washington, of which Warren F. Draper, M.D., formerly of the U. S. Public Health Service, is Executive Medical Officer, announced recently the location selected for the headquarters and area medical offices of the Welfare and Retirement Fund as follows:

Asa Barnes, M.D., Louisville, Ky.
Deane F. Brooke, M.D., Beckley, W. Va.
William A. Dorsey, M.D., Denver, Colo.
Leslie A. Falk, M.D., Johnstown, Pa.
Lorin E. Kerr, M.D., Morgantown, W. Va.
John T. Morrison, M.D., Charleston, W. Va.
Herbert Scheffer, M.D., Birmingham, Ala.
Cecil A. Z. Sharp, M.D., St. Louis, Mo.
John D. Winebrenner, M.D., Knoxville, Tenn.

According to the *Washington Report on the Medical Sciences,* the UMWA Welfare and Retirement Fund is concerned in the main with pensions, disability benefits, death benefits, and medical, health, and hospital services for the members of the United Mine Workers of America. It has undertaken to provide a prepaid form of hospital service and medical attention in various districts and in all local unions. The Welfare and Retirement Fund is utilizing present medical and hospital facilities under conditions which aim at high standards of service.

DR. DOULL JOINS AMERICAN LEPROSY FOUNDATION STAFF

James A. Doull, M.D., Dr.P.H., Medical Director, U. S. Public Health Service, Washington, D. C., has been detailed, effective November 1, to the Leonard Wood Memorial (American Leprosy Foundation) which has headquarters at One Madison Avenue in New York City. The office of the Medical Director will be located in the Federal Security Building (Room 5721), Washington, D. C. pending establishment of permanent headquarters in Washington. Dr. H. Windsor Wade, formerly Medical Director of the Memorial, has been forced to relinquish the position because of ill health but will remain on the staff as Associate Director and Pathologist. Dr. John Hanks will continue in charge of the Memorial's Bacteriology Laboratory in the Department of Bacteriology and Immunology at Harvard. Dr. Ricardo S. Guinto will continue as epidemiologist.

STATE AND TERRITORIAL HEALTH OFFICERS

The Annual Meeting of the State and Territorial Health Officers Association was held in Washington in the middle of November and the following new officers were elected:

President—R. H. Hutcheson, M.D., Nashville, Tenn.
Vice-President—Wilton L. Halverson, M.D., San Francisco, Calif.
Secretary-Treasurer—R. L. Cleere, M.D., Denver, Colo.
Vlado R. Getting, M.D., Boston, Mass., and Carl N. Neupert, M.D., Madison, Wis., were elected to the Executive Committee.

According to the *Washington Report*

on the Medical Sciences, the Association resolved that the most urgent legislation in their particular field to confront the new Congress will be federal subsidies of local public health units throughout the country and the establishment of a Department of Health, Education and Security, headed by a Secretary as a Cabinet member.

The following resolutions were adopted:

WHEREAS the American Public Health Association has assumed proper leadership, through its Merit System Service, in developing examination services for the selection of professional public health personnel and has, in this process, made use of the skills and experience of public health workers throughout the country; and

WHEREAS the selection of the most highly qualified of the candidates for service in public health is basic to the effective functioning of public health programs; and

WHEREAS the effectiveness of this program is evidenced by the fact that 75 per cent of the states have made successful use of these examinations; and

WHEREAS there is no other source for such services available to health authorities; and

WHEREAS the Annual Service Plan has been developed by the Merit System Service to permit the wider use of examinations and has been endorsed by the Public Health Service, the Children's Bureau, and the Executive Board of the American Public Health Association; therefore be it

RESOLVED:

1. That the Association of State and Territorial Health Officers record their endorsement of the examination program of the Merit System Service of the American Public Health Association; and
2. That they affirm their belief in the effectiveness of these examinations as one inportant tool in the selection of qualified public health workers; and
3. That they urge participation by State Health Departments in the Annual Service Plan—not only so that individual states may benefit from the use of these examinations, but also so that the program itself may have the support which is necessary to insure its continued development and extension.

A second resolution follows:

WHEREAS human resources are the nation's greatest asset; and

WHEREAS the security and well-being of our country cannot be achieved unless basic public health services are available in every locality through adequately staffed and properly equipped local public health units; and

WHEREAS at present more than 40 million persons in the United States live in areas not served by local public health units and less than 10 million persons live in areas served by units which meet basic minimum public health standards; and

WHEREAS it is well known that annually thousands of persons die unnecessarily from causes that could have been prevented; and

WHEREAS many areas cannot with their own resources support local public health units staffed and equipped to the extent necessary for the provision of the basic public health services essential to the well-being of the community; now therefore, be it

RESOLVED that the provision of adequate local health services is of paramount importance and that it be given highest priority in improving the health of the people; and further be it

RESOLVED that the Association of State and Territorial Health Officers urge the states to

1. Enact legislation enabling the establishment of county and multi-county units where such authority does not now exist;
2. Develop state-wide plans for local health unit coverage;
3. Develop state financial assistance plans for equitable allocation of funds to local health units;
4. Extend every possible assistance to medical and nursing schools in the teaching of preventive medicine and public health to undergraduate students in order to encourage their interest in public health as a career;
5. Assist in the development of local health councils;
6. Develop competent field training centers; and be it further

RESOLVED that the Association of State and Territorial Health Officers urge the support of federal legislation for the provision of

1. Financial assistance to State Health Departments for developing and maintaining local public health units organized to provide basic full-time public health services in all areas of the Nation, and, in the training of all types of personnel for local public health unit work; and be it further

RESOLVED that the Public Health Service, the Children's Bureau, all State Health Departments, voluntary organizations, and the general public be urged to support such legislation.

EVELYN BURKE R.

PROGRESS UNDER THE FEDERAL HOSPITAL CONSTRUCTION ACT

The U. S. Public Health Service Division of Hospital Facilities has reported progress under the Hill-Burton Act up to the end of October, 1948. Five hundred forty applications have been approved by the Surgeon General, of which there are now under construction more than 100.

According to the *Washington Report on the Medical Sciences,* the total estimated cost of the 540 is in excess of 301 million dollars, of which the federal share will be approximately 92 million. All but 124 of the projects are new general hospitals or additions to present plans. The remainder consists of 27 mental hospitals, 16 for tuberculosis, 9 for chronic disease, 66 health centers, 3 nurses' homes and 3 health department laboratories. It is said that two-thirds of the prospective new general hospitals will be erected in towns of less than 5,000 population and that only 15 are intended for cities of 50,000 population or more.

DR. ANDREWS TO IRAN ON MEDICAL MISSION

Justin Andrews, Sc.D., Executive Officer, Communicable Disease Center, Atlanta, has been borrowed by the U. S. State Department to make a one month survey of the worsening malaria problem in Iran, which requested the study and will foot the bill. Dr. Andrews' job will be to formulate a malaria abatement program, then return and marshal an American force which would go to Iran, probably in March, for the purpose of training native technicians in malaria control techniques. The plan is to have the campaign under full steam by midsummer. Dr. Andrews possesses wide experience as a malaria eradication expert, having devoted his Army career to the work in Mediterranean and Southwest Pacific areas during World War II. He was temporarily detached from his regular duties to take the assignment to Iran.

NATIONAL GASTROENTEROLOGICAL ASSOCIATION 1949 AWARD CONTEST

The National Gastroenterological Association announces its Annual Cash Prize Award of $100 and a Certificate of Merit for the best unpublished contribution on Gastroenterology or allied subjects. Certificates will also be awarded those physicians whose contributions are deemed worthy. The award will be made at the Annual Convention Banquet of the Association in October, 1949.

Contestants residing in the United States must be members of the American Medical Association. Those residing in foreign countries must be members of a similar organization in their own country. All entries for the 1949 prize should be limited to 5,000 words, be typewritten in English, prepared in manuscript form, submitted in five copies accompanied by an entry letter, and must be received not later than April 1, 1949. Entries should be addressed to the National Gastroenterological Association, 1819 Broadway, New York 23, N. Y.

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION

At the annual dinner meeting of the Massachusetts Public Health Association, held at the University of Massachusetts in June, the following officers were elected:

President: Vlado A. Getting, M.D., State Commissioner of Public Health
First Vice-President: Mary E. Spencer, Ph.D.
Second Vice-President: Leon A. Bradley, Ph.D., Head, Department of Bacteriology and Public Health, University of Massachusetts
Treasurer: Catherine Atwood
Secretary: S. L. Skvirsky, M.D.
Executive Secretary: Mrs. Elizabeth K. Caso, Harvard School of Public Health, 695 Huntington Avenue, Boston
Section chairmen:
Health Officers—Alfred L. Frechette, M.D.

Laboratory—John M. Newell
Food and Nutrition—Stuart B. Foster, Ph.D.
Sanitation—Robert E. Bemis
Maternal and Child Health—Stuart S. Stevenson, M.D.
Public Health Nursing—Alice C. MacKinnon, R.N.
Health Education—Beryl J. Roberts, M.A.

The next annual meeting will be held at Amherst in conjunction with the third annual Massachusetts Public Health Conference June 15–17, 1949.

NORTH DAKOTA PUBLIC HEALTH ASSOCIATION

The Fifth Annual Meeting of the North Dakota Public Health Association, an Affiliated Society of the A.P.H.A., was held in Minot on October 28 and 29. The two day meeting included a joint meeting with the North Dakota Health Officers Association and the Northwest District Medical Society, and sectional meetings of sanitarians, nurses, laboratory personnel, and lay persons. The registered attendance was 124.

The following new officers were elected:

President—Melvin E. Koons, Grand Forks
Vice-President—Everett Lobb, Fargo
Treasurer—Milla Tollefson, Bismarck
Secretary—Margaret L. Watts, Bismarck

Bernadine Cervinski was elected to represent the North Dakota society on the Governing Council of the American Public Health Association.

PERSONALS

VESTA BOWDEN, R.N.,† formerly Maternal and Child Health Nursing Consultant and Assistant Director of the Public Health Nursing Section, was appointed Director of the Public Health Nursing Section of the Colorado State Health Department, Denver.

GEORGE R. COWGILL, Ph.D.,* Professor of Nutrition, Yale University, New Haven, Conn., was presented recently with the Fourteenth Annual Scientific Award of the Grocery Manufacturers Association of America, Inc., "in recognition of his contributions to the science of nutrition, particularly for his research in the functional rôle of Vitamin B_1, his success as a teacher of young biochemists, and his editorial work for the Journal of Nutrition."

GERALD J. COX, Ph.D., has been appointed Director of Dental Research in the University of Pittsburgh's School of Dentistry, Pittsburgh, Pa. He has held the position of research chemist with the Corn Products Refining Company, Argo, Ill., since 1944.

MAJOR GENERAL FRANCOIS DAUBENTON has been named chief of the WHO mission to Ethiopia, succeeding D. A. MESSINEZY,* assigned to WHO's secretariat in Geneva. General Daubenton is former Director of the Medical Services of the Royal Netherlands Army.

EARL DEVENDORF,* of Schenectady, N. Y., who for more than 20 years has been Assistant Director of the Bureau of Environmental Sanitation, New York State Department of Health, Albany, has been promoted to become Director of the Bureau, succeeding CHARLES A. HOLMQUIST, of Albany who retired October 31.

WILLIAM J. DOYLE, M.D., formerly in private practice and county health officer in Montana, has been appointed as Deputy District Health Officer, Washington-Yamhill District Health Department in Oregon.

JOHN M. GLENN,† the first Executive Director of the Russell Sage Foundation and now a Trustee, was honored by a number of friends and associates at an informal dinner at the Harvard Club in New York City, October 26, on the occasion of his approaching 90th birthday.

PROFESSOR EDMOND GRASSET, the Director of the new Institute of Hygiene

in Geneva, Switzerland, has been visiting the schools of public health in North America as the guest of the Rockefeller Foundation.

RILEY H. GUTHRIE, M.D., on November 1, became special mental hospital consultant, Mental Hygiene Division, U. S. Public Health Service, Washington, D. C. He will conduct surveys of mental hospitals and provide consultive services regarding hospital administration, care of patients, and other problems of mental hospitals to state governors and administrators of state mental hospitals.

RUTH BORING HOWARD, M.D., is the new Director of Maternal and Child Health Section of the Colorado State Health Department, Denver. Since 1942, she has been in the U.S.P.H.S. with the rank of Surgeon, and among her assignments was that of Medical Director in a Venereal Disease Rapid Treatment Center.

BRIG. GEN. EDGAR ERSKINE HUME, M.C., U.S.A.,* received the Gorgas Award in San Antonio, Tex., on November 12, at the meeting of the Association of Military Surgeons in recognition of his services in the Medical Corps since 1916 and with special reference to the control of typhus fever.

WILLIAM KILOH, Executive Secretary of the Humboldt County, California, Tuberculosis and Health Association, has resigned to accept a position with the Alaska Health Department.

LLEWELLYN E. KLING, M.D., M.P.H.,† has resigned as Medical Director of the Planned Parenthood Federation, New York, N. Y., to become Associate Professor of Public Health Education and Head of the Division of Public Health Education, Columbia University School of Public Health, New York. Dr. Kling served as a county health officer in Nebraska, was with the U.S.P.H.S. during the war. He is a graduate in public health from the Columbia School.

AMEDEE S. LANDRY, Senior Chemist, Division of Industrial Hygiene, New Hampshire State Health Department, has resigned to become Industrial Hygiene Chemist with the Institute of Inter-American Affairs. Mr. Landry will be assigned to the Peruvian Government and will be stationed at Lima, Peru.

OSCAR LOTZ, M.D., Executive Secretary of the Wisconsin Anti-Tuberculosis Association, was named President of the Mississippi Valley Conference on Tuberculosis at the Conference's annual meeting in September.

HELEN LOVELL, on October 1 was appointed Nutritionist for the Iowa State Department of Health, Des Moines. She recently completed her work on her Master of Science degree at the University of Nebraska, Lincoln.

ESCHSCHOLTZIA LUCIA, PH.D.,* Consultant in Statistical Research, and former Professor of Biometry at the University of California, is retiring from the California State Department of Public Health, Los Angeles, after 2 years of service.

ELEANOR J. MACDONALD,* Research Statistician with the Division of Cancer and Other Chronic Diseases, Connecticut State Health Department, Hartford, left October 1 to become Research Statistician at the M.D. Anderson Hospital for Cancer Research, Houston, Tex.

C. A. MCINTYRE, M.D., has begun his duties as Health Officer for the San Juan Basin Health Department including Archuleta, Dolores, LaPlata, Montezuma, and San Juan Counties in Colorado.

MARY E. PARKER, R.N.,* has been promoted from Assistant Director, Bureau of Public Health Nursing, New York State Department of Health,

* Fellow A.P.H.A.
† Member A.P.H.A.

Albany, to become Director, effective January 1, succeeding MARION W. SHEAHAN, R.N.,* retired. Miss Parker took her postgraduate work at Yale and at the University of Minnesota.

MARION W. SHEAHAN, R.N.,* on December 31, 1948, retired as Director of the Bureau of Public Health Nursing in the New York State Department of Health. Miss Sheahan has served for 28 years and as Director since 1932. She is immediate Past-President of the N.O.P.H.N., and has served as Vice-President of the A.P.H.A.

EDMOND B. SINCLAIR, M.D., was appointed as crippled children's physician with the Connecticut State Department of Health, Hartford. Dr. Sinclair studied at the Yale University School of Medicine, Department of Public Health, for the academic year 1947–1948.

MARY E. SOULES, M.D.,† North Dakota State Health Department, is now Deputy Health Officer, Multnomah County (Oregon) Health Department.

JAMES H. STEELE, D.V.M.,† of the staff of the U. S. Public Health Service Communicable Disease Center, was appointed as Chairman of the U. S. Delegation to the Second Inter American Congress on Brucellosis held in Argentina, November 17–26.

KEITH T. SWARTZ, PH.D., research specialist on canned foods, has joined the staff of the Animal Products Branch of the Quartermaster Food and Container Institute for the Armed Forces, Chicago.

HENRY C. SWEANY, M.D.,† of Chicago, was awarded the 1948 Dearholt Medal, given annually by the Mississippi Valley Conference on Tuberculosis for outstanding work in tuberculosis control. Dr. Sweany is Medical Director of Research, Municipal Tuberculosis Sanitarium, Chicago, and served for 5 years as a member of the N.T.A.'s Committee on Medical Research.

L. E. TAYLOR, of the Detroit Edison Company, became the new President of the Illuminating Engineering Society, New York, N. Y., at the 1948 Conference of the Society in Boston in October.

ALEXANDER WITKOW, M.D.,* formerly Director of Local Health Administration, West Virginia State Health Department, became Health Commissioner of Worcester, Mass., on October 1.

ALASKA HEALTH DEPARTMENT—NEW STAFF MEMBERS:

PENELOPE EASTON, M.P.H.,† Dietary Consultant, to advise hospitals, institutions, and schools on nutrition problems.

LAURIS S. PARKER, Engineering Aide, to assist in general sanitation activities and the preparation of sanitation educational materials at the Juneau office.

ALFRED BAKER,† Sanitarian, for the Ketchikan area. He served for 3 years each in the Navy Medical Corps and the Fisheries Research Laboratory at Ketchikan.

GERTRUDE HANSEN, Public Health Nurse, to conduct itinerant nursing services from Haines. She has been with the Milwaukee City Health Department for the past 12 years.

MARY BRIMBERRY,† Public Health Nurse, to serve in the Interior. She spent 13 years with the Chicago Visiting Nursing Association.

GEORGIA STATE HEALTH DEPARTMENT (ATLANTA)—APPOINTMENTS:

LILLIAN M. BISCHOFF,† recently returned from 2½ years as chief nurse in the WHO I.C. Field Mission to Ethiopia, has been appointed Associate Director in the

* Fellow A.P.H.A.
† Member A.P.H.A.

State Health Department Division of Public Health Nursing.

DOROTHY F. JOHNSTON, Assistant Nurse Officer, U.S.P.H.S., has been transferred from Alto Rapid Treatment Center to the Georgia State Health Department, Venereal Division, as Consultant.

LITA L. KORBE, recently Director of Public Health Nursing, University of Georgia, has been appointed as Regional Public Health Nursing Consultant in the State Health Department.

Deaths

JOSEPH F. BREDECK, M.D., D.P.H.,† died October 4. Dr. Bredeck was Health Commissioner of St. Louis, Mo. (Health Officers Section.)

ANDREW G. DUMEZ, M.D., a member of the Maryland State Council on Medical Care since the appointment of that group in 1945, died suddenly on September 27. Dr. DuMez, who was appointed to the council as a representative of the Maryland Pharmaceutical Association, was Dean of the University of Maryland School of Pharmacy and a Past-President of the American Pharmaceutical Association.

WILLIAM A. EVANS, M.D., former Health Commissioner of Chicago, and President of the Chicago Medical Society, and for 23 years editor of the Chicago Tribune's "How to Keep Well" column, died November 8 at the age of 83.

JOHN TEMPLE GLENN, JR.,† head of the Production Laboratory of the Sharp and Dohme Laboratories in Pennsylvania, died last summer after a long illness. (Laboratory Section.)

JESSE LYNN MAHAFFEY, M.D.,† New Jersey State Health Director from 1931 until the reorganization of the Health Department in 1947 under New Jersey's new Constitution, died November 1. He was Acting State Health Commissioner of the reorganized department until June 2, when DANIEL BERGSMA, M.D.,* was sworn in as Commissioner. (Health Officers Section.)

MARY ADELAID NUTTING, internationally known leader in nursing education and Professor Emeritus of Teachers College, Columbia University, New York N. Y., since 1925, died October 3 in her 90th year after a prolonged illness. Her home was at Emerson Hall, Teachers College, Columbia University.

DON C. PETERSON, M.D., M.P.H.,* State Registrar of Vital Statistics, Tennessee State Department of Health, Nashville, died June 13, 1948. (Vital Statistics Section.)

CONFERENCES AND DATES

American College of Physicians. New York, N. Y. March 28–April 1.

American Association of Schools of Social Work. Boston, Mass. January 26–29.

American Water Works Association:

Annual Mid-winter Luncheon Meeting of the New York Section, held jointly with the New York State Sewage Works Assn. and the Sanitary Engineering Division of the American Society of Civil Engineers. Hotel Pennsylvania, New York, N. Y., January 21.

New Jersey Section Luncheon Meeting. Essex House, Newark, N. J., February 17.

Association of Military Surgeons of the United States New York Academy of Medicine, 2 East 103rd Street, New York, N. Y. Monday evening, January 31, 8:30 P.M.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

National Cancer Conference. Memphis, Tenn. February 25–27.

National Society for the Prevention of Blindness. New York, N. Y. March 16–18.

National Tuberculosis Association. Detroit, Mich. Week of May 2.

Ninth International Heating and Ventilating Exposition. International Amphitheater, Chicago, Ill. January 24–28.

Pest Control Operators Conferences:

Canadian. University of Montreal, P.Q., Canada. February 14–16.

Eastern. University of Massachusetts, Amherst, Mass. January 31–February 2.

Pacific. University of California, Berkeley, Calif. January 31–February 2.

Purdue. Purdue University, Lafayette, Ind. February 7–11.

Southern. Louisiana State University, Baton Rouge, La. January 27–29.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.

Western Branch. American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.



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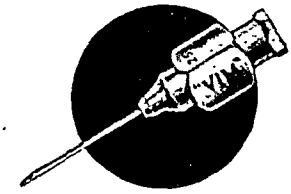
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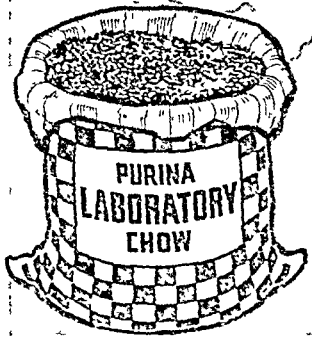
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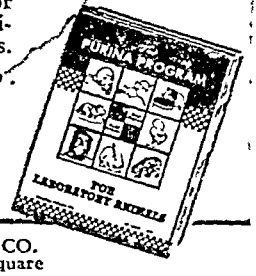
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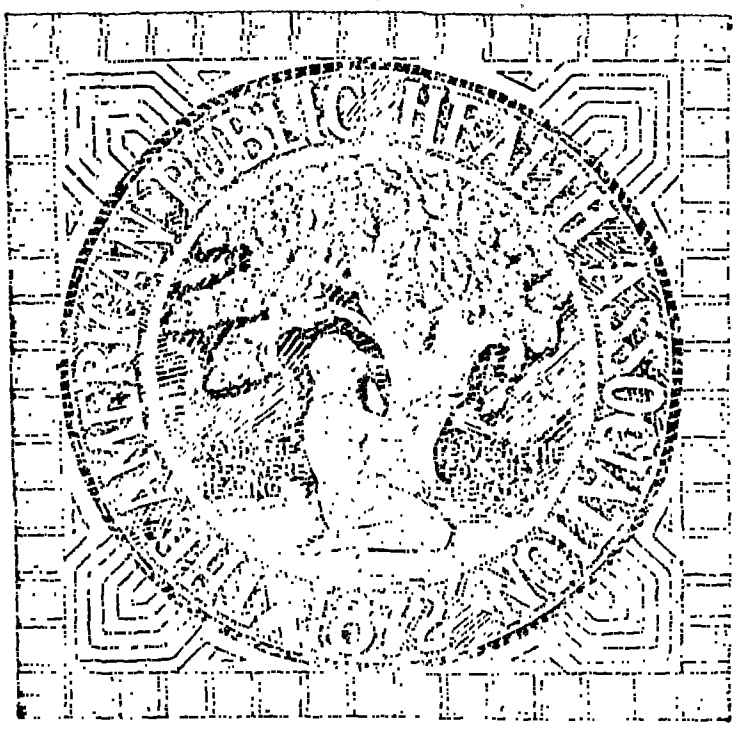
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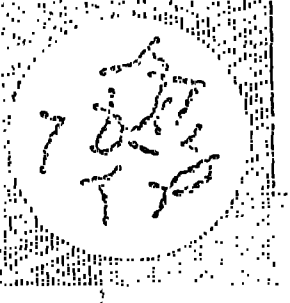


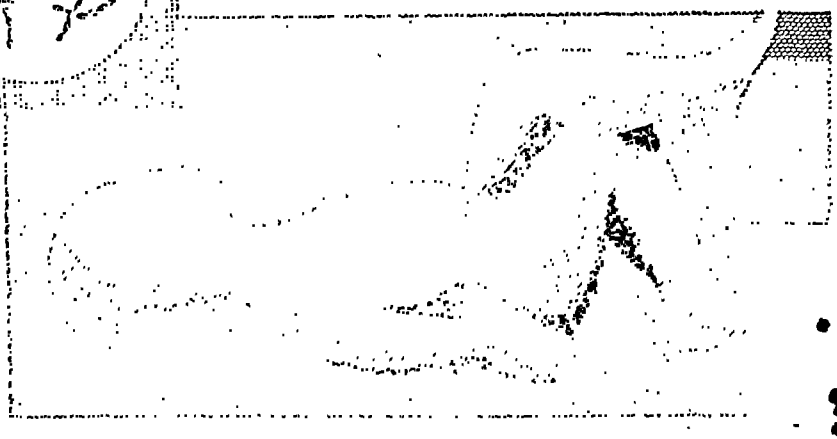
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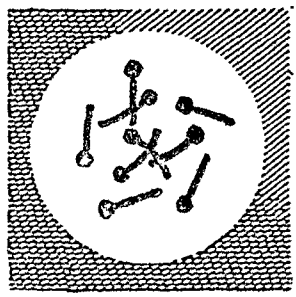
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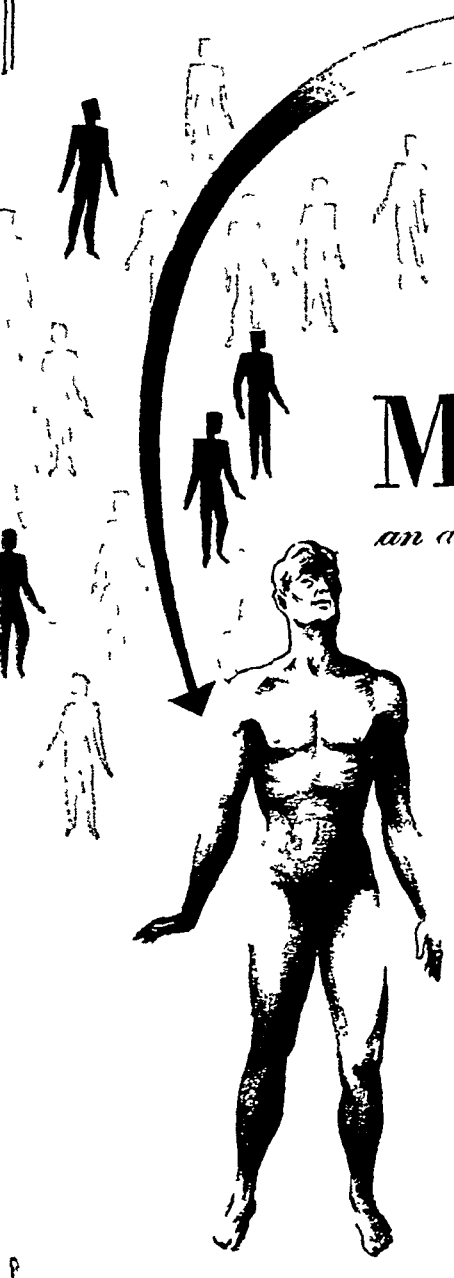
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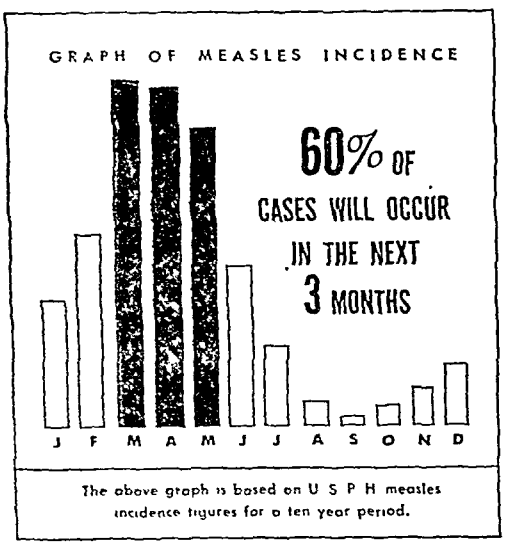
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For prevention—
0.1 cc. Immune Serum Globulin
For modification—
0.02 cc. Immune Serum Globulin
} *intramuscularly, per pound body weight*

Prepare now for measles' peak season just ahead. Notify your pharmacist the amount of gamma globulin you expect to use—and specify Cutter.

CUTTER LABORATORIES • BERKELEY 10, CALIFORNIA

be prepared with—

IMMUNE SERUM GLOBULIN — CUTTER

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"No lipstick stains where they use . . . DIXIE CUPS"



No question mark of any kind—visible or invisible—to reveal dangerously ineffective dishwashing or sanitizing. Do yourself a favor by pointing out to fountaineers how Dixie can clean up and speed up their service. Everybody wins with Dixie—you, the fountain operator and the trusting public.

DIXIE CUP

"Dixie" is a registered trade mark of the Dixie Cup Company

DIXIE CUPS, VORTEX CUPS AND PAC-KUP CONTAINERS ARE MADE AT EASTON, PA., CHICAGO, ILL., DARLINGTON, S. C., FORT SMITH, ARK., TORONTO, CANADA

We have available for immediate delivery:

High titre sera for Blood Grouping and Rh testing.

Antigens for Kline, Kahn, Mazzini and Kolmer tests.

Lyophilized Guinea Pig Complement, Sheep Cells and Amboceptor for Complement Fixation test.

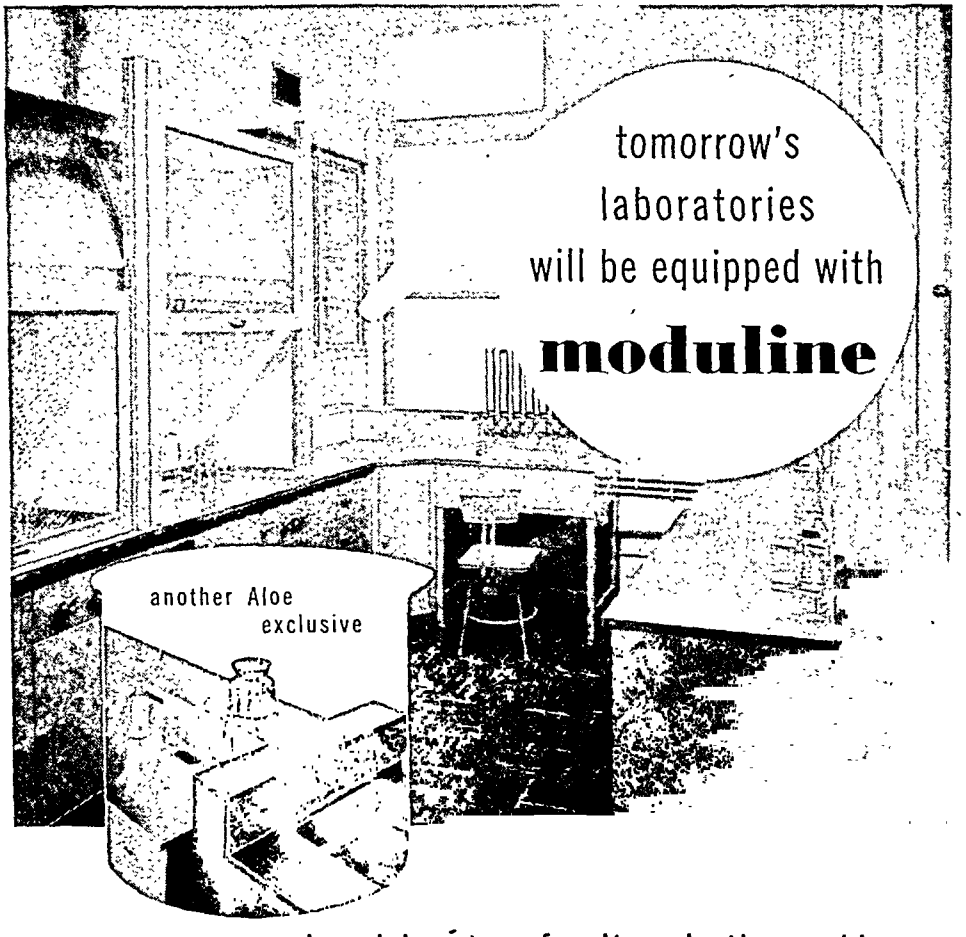
Positive Serum 2+ and 4+ standardized for all tests.

CERTIFIED BLOOD DONOR SERVICE

146-16 Hillside Avenue Jamaica 2, New York

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the most modern laboratory furniture in the world

Moduline, by Aloe, comes in architectural approved widths and depths so that custom-built laboratory facilities may be developed from standard Moduline units. Notice these details: concealed hinges; baked steel finishes with stainless steel table tops; Furnished with or without reagent shelves. Utilities can be top or splashback mounted. No working space is taken up with utilities. Write for special Moduline booklet T-300.

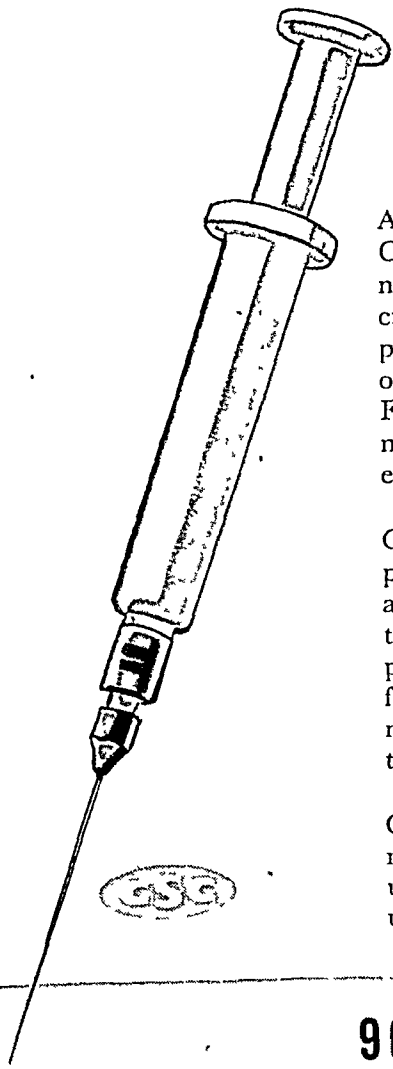
Special schematic layouts for laboratories available on request.

A. S. ALOE COMPANY *Serving Science Since 1860*

1831 Olive Street • St. Louis 3, Missouri

aloe

A Single Injection Every Other Day



Antibiotic therapy is greatly simplified when C.S.C. Crystalline Procaine Penicillin G in Peanut Oil with aluminum monostearate is prescribed. A single 1 cc. injection (300,000 units) produces therapeutic blood levels for 96 hours in over 90% of patients, *and for 48 hours in all patients.* For certainty of therapy, this preparation need not be given, as a rule, more often than once every other day.

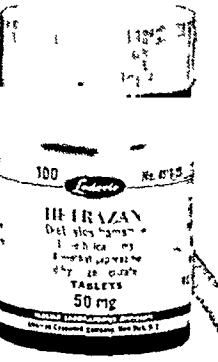
Crystalline Procaine Penicillin G in Peanut Oil-C.S.C. contains 300,000 units of micronized procaine penicillin per cc., together with 2% aluminum monostearate for producing a thixotropic suspension. This outstanding penicillin preparation is free flowing and requires no refrigeration. It is indicated in the treatment of most infectious diseases amenable to penicillin therapy.

Crystalline Procaine Penicillin G in Peanut Oil-C.S.C. is available at all pharmacies in economical 10 cc. size rubber-stoppered vials (300,000 units per cc.). Also in vials containing 300,000 units (1 cc.), in boxes of five vials.

96-HOUR
CRYSTALLINE PROCAINE PENICILLIN G
IN PEANUT OIL
WITH 2% ALUMINUM MONOSTEARATE

C.S.C. Pharmaceuticals

A DIVISION OF COMMERCIAL SOLVENTS CORPORATION, 17 EAST 42ND STREET, NEW YORK 17, NEW YORK



HETRAZAN*

DIETHYLCARBAMAZINE

LEDERLE

Stability in the Tropics

This new organic compound may be given easily by mouth, is almost immediately effective against the microfilariae in the blood stream and tissues, and is stable at the high temperatures that prevail in the tropics. It tends to end infestation with bancroftial filariae in 3 to 4 weeks and may be used to stamp out the infestation in whole populations.

Clinical tests made in India, Africa, the South Pacific, the West Indies, and Central America have established its clinical use.

PACKAGES: *Bottles of 100 and 1000 tablets*

*Reg U.S Pat Off.



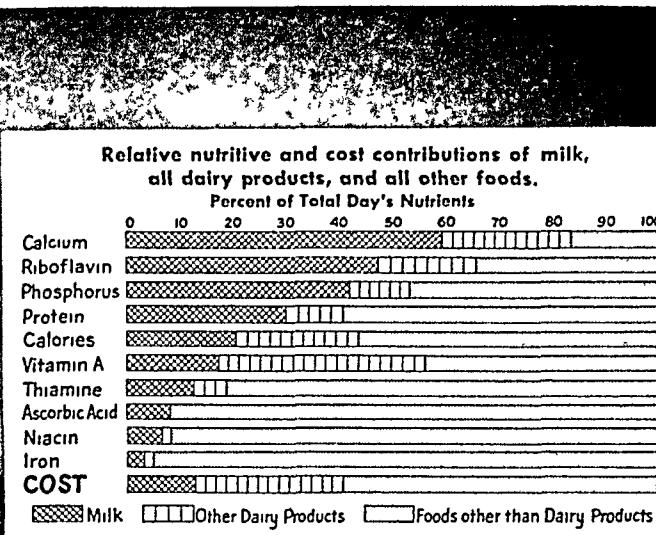
High power photomicrograph (X 210) of microfilaria of W. bancrofti *in human blood. The red blood cells have been dissolved, leaving only the microfilaria and the white blood cells.*

LEDERLE LABORATORIES DIVISION

AMERICAN Cyanamid COMPANY

30 ROCKEFELLER PLAZA NEW YORK 20, N. Y.





This chart shows the nutritional contribution and comparative economy of dairy products and all other foods in a good average day's meals planned to follow the Basic Seven food pattern

Milk and Its Products are an Economical Basis for Daily Meals*

In planning meals, each food must be evaluated for its relative cost and its potential benefit to the body.

Milk and its products raise the food value of meals in each of the major aspects of nutrition . . . energy, proteins, minerals and vitamins. The chart above shows that milk and its products—cheese, ice cream and butter—in recommended amounts, can supply well over half of the day's total needs for calcium, phosphorus, riboflavin and vitamin A, and important amounts of other essentials, at considerably less than half of the day's total food cost. The chart demonstrates the fact that milk and its products are an economical basis for nutritious daily meals.

Milk's Food Value is High—Milk is an outstanding example of a food which contributes many times over its original cost in terms of bodily benefits. Without milk it is almost impossible to obtain the recommended daily amounts of calcium from other foods. Needed amounts of riboflavin and protein also are difficult to obtain without milk. In addition to its many *known* benefits, milk also is believed to contain additional nutritional factors whose identity and exact function are not yet fully established. Scientists are constantly carrying on research to bring forth the final significance of milk's nutritional role.

Milk Provides Generously for Its Own "Family"—Milk passes along to its products varying combinations of its nutritive elements. Cheese inherits much of the high quality protein, as well as substantial amounts of calcium and phosphorus. Ice cream, too, retains much of the protein content of milk, and helps increase the calcium and vitamin A intake. Ice cream is also a good source of riboflavin and recently has been shown to contain a highly utilizable form of this vitamin. Butter is a nutritious food in its own right. It is a splendid source of vitamin A and provides needed food energy in a delicious, digestible form.

**Milk is an Economical Food.* Dairy Council Digests. 20.2 (Nov.) 1948.

The presence of this seal indicates that all nutrition statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association

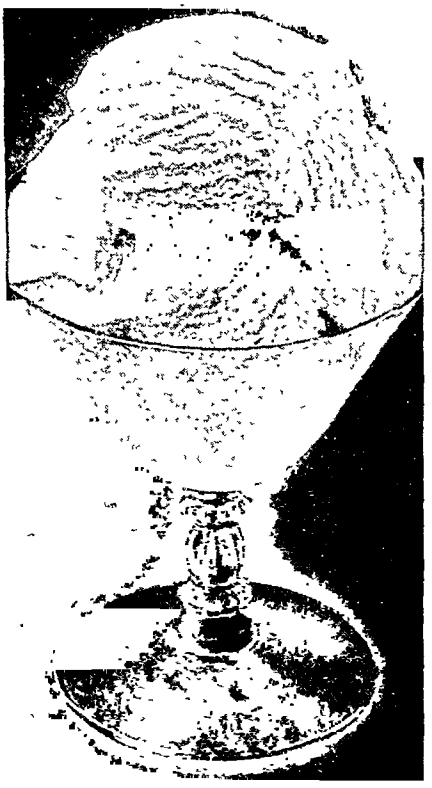
National DAIRY COUNCIL

111 North Canal Street • Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and to education in the use of dairy products.

New Light on the Food Value of Ice Cream

Recent nutrition research has produced new evidence of the excellent food value of ice cream.



The substantial contribution ice cream can make to our dietary needs was assumed long ago from calculations of the food value of ice cream's ingredients. Now, however, actual analyses of commercial ice cream itself have shed new light on its food value. These analyses show that, in general, we had underestimated the nutritive content of ice cream. *This was particularly true of riboflavin and vitamin A.*

By actual analysis of average vanilla ice cream, values for calories, protein, fat, three important minerals, and five essential vitamins were obtained by Dahlberg and Loosli.* The riboflavin content is now realized to be much higher than the value formerly arrived at by calculation. Vitamin A is higher, too. This is because most ice cream is made with milk fat produced in summer months when the vitamin A content is above average levels.

The presence of a nutritive element in a particular food is merely the first step in determining its ultimate beneficial effect. The nutrient must be in a form which is readily assimilated by the body. In this respect, the riboflavin in ice cream is of a superior nature.

A study conducted by Everson and co-workers** on eight women subjects reveals that the riboflavin in ice cream is utilized almost 100% by the body—*nearly as well utilized as the pure crystalline form of the vitamin.* Utilization from servings of two other test foods, which were similar to the ice cream in riboflavin content was less than 50%.

These studies offer tangible evidence of ice cream's importance as an *everyday* food. Ice cream can play an important role in promoting general well being for all and can help meet the special diet demands of pregnant women, convalescents, and aged persons.

*Dahlberg, A. C. and Loosli, J. K. *Nutritive value of commercial ice cream.* J. Am. Diet. Assn. *24*:20 (Jan.) 1948.

**Everson, G., Wheeler, E., Walker, H., and Caulfield, W. J. *Availability of riboflavin of ice cream, peas, and almonds judged by urinary excretion of the vitamin by women subjects.* J. Nutr. *35*:209 (Feb.) 1948.

National DAIRY COUNCIL

111 North Canal Street • Chicago 6, Illinois

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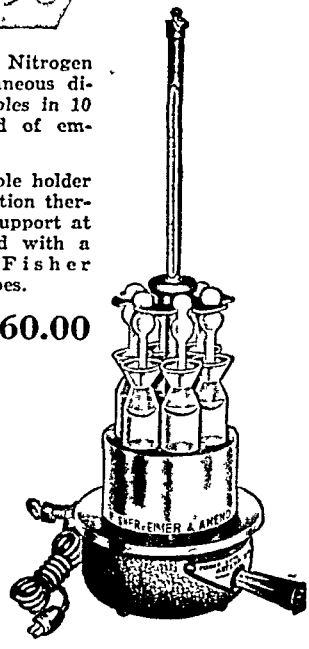
FISHER - E. & A.
Apparatus for Urinalyses . . .



The E.&A.-Leiboff Urea Nitrogen Apparatus permits simultaneous digestion of one to six samples in 10 minutes—without the need of employing an autoclave.

The cast aluminum sample holder is provided with a combination thermometer shield and tube support at its center; it is furnished with a thermostatically-controlled Fisher Heater. With 2 Leiboff tubes.

$60.00



E. & A. LEIBOFF UREA APPARATUS

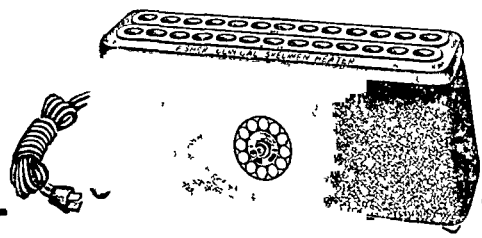
Thirteen urine samples for the Purdy and the Benedict tests—a total of 26—can be heated simultaneously in the Fisher Clinical Specimen Heater.

Standard size test tubes in the front row are heated only at the topmost inch for albumen testing; those in the rear row are base-heated for sugar determinations.

Fisher Clinical Specimen Heater, with thermostatically-controlled heating elements for 110 volt, A.C.

$30.00

FISHER CLINICAL SPECIMEN HEATER





Available with other Clinical Specialties from:

Headquarters for Laboratory Supplies

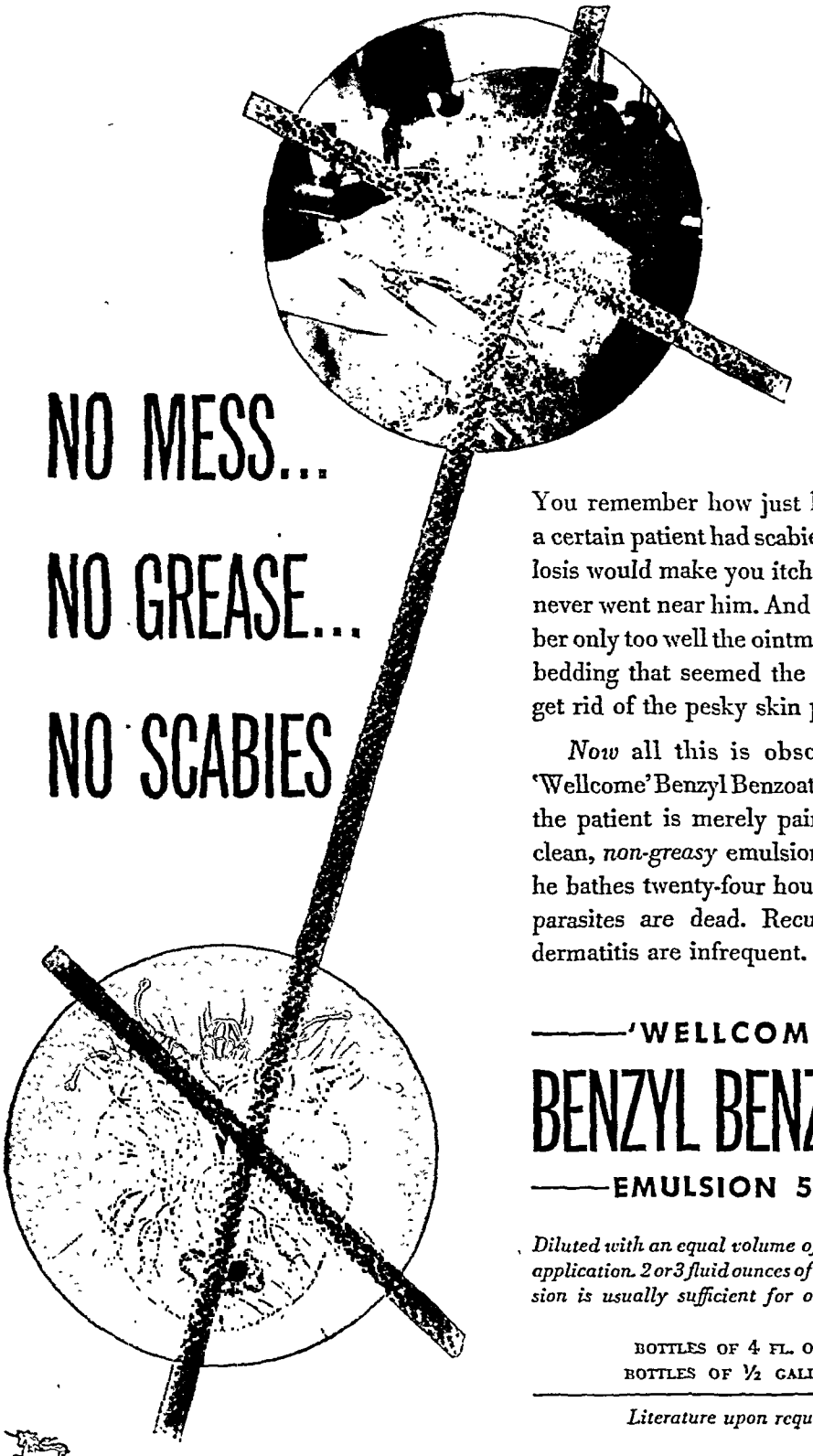
FISHER SCIENTIFIC CO.

717 Forbes St., **Pittsburgh (19), Pa.**
2109 Locust St., **St. Louis (3), Mo.**

EIMER AND AMEND

Greenwich and Morton Streets
New York (14), New York

In Canada: Fisher Scientific Co., Ltd., 904 St. James Street, Montreal, Quebec



NO MESS...
NO GREASE...
NO SCABIES

You remember how just hearing that a certain patient had scabies or pediculosis would make you itch even if you never went near him. And you remember only too well the ointment-smeared bedding that seemed the only way to get rid of the pesky skin parasites.

Now all this is obsolete. With 'Wellcome' Benzyl Benzoate Emulsion, the patient is merely painted with a clean, *non-greasy* emulsion, and when he bathes twenty-four hours later, the parasites are dead. Recurrence and dermatitis are infrequent.

'WELLCOME' BRAND

BENZYL BENZOATE

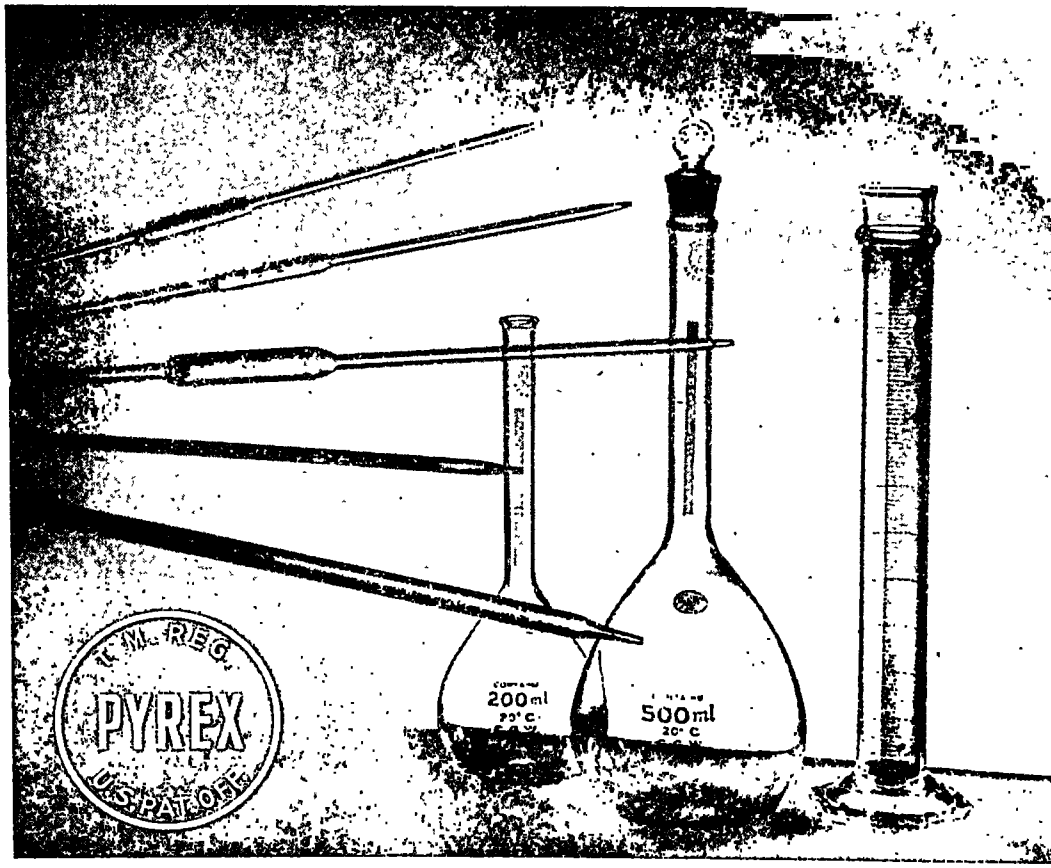
EMULSION 50%

Diluted with an equal volume of water before application. 2 or 3 fluid ounces of the 25% emulsion is usually sufficient for one treatment.

BOTTLES OF 4 FL. OZ.
BOTTLES OF ½ GALLON

Literature upon request

BURROUGHS WELLCOME & CO. (U.S.A.) INC., 9 & 11 EAST 41st ST., NEW YORK 17



The BIGGEST VALUE in VOLUMETRIC WARE!

Corning does many things to give you the biggest value in volumetric ware. Made of PYREX brand glass No. 774, it's tops in quality. This pays off in longer service life and in greater accuracy.

In its chemical stability and resistance to thermal and physical shock, PYREX volumetric ware is outstanding. You can use it for so many different applications that it gives you greater working flexibility.

The design of this ware is also unique. PYREX brand cylinders are made with hex bases. They can't roll. Some types are made with reinforced tops. This minimizes breakage from accidental tipping. Each piece is individually calibrated for accuracy. This all adds up to bigger value.

And, PYREX volumetric ware is available with or without "Lifetime Red" graduations. When you specify "Lifetime Red," you know that the graduations will be permanent and *always* can be read. So when you order volumetric ware from your Corning Laboratory Supplier, specify PYREX brand and get extra value.

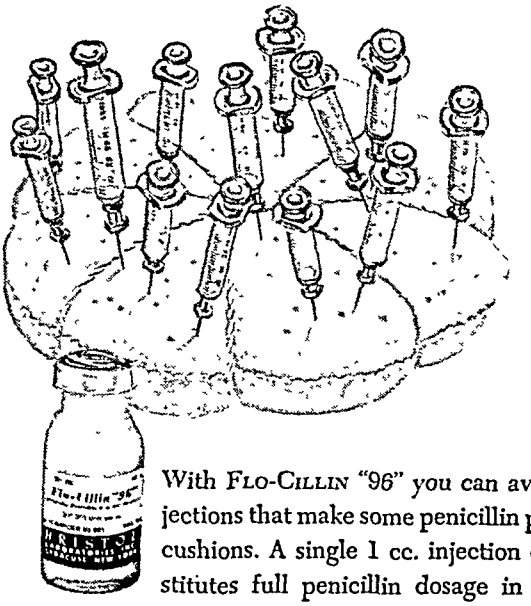
CORNING means research in GLASS

CORNING GLASS WORKS, CORNING, N. Y.

LABORATORY GLASSWARE

Stocked by Leading Laboratory Supply Houses

TECHNICAL PRODUCTS DIVISION: LABORATORY GLASSWARE • GLASS COMPONENTS
GLASS PIPE • GAUGE GLASSES • LIGHTINGWARE • SIGNALWARE • OPTICAL GLASS



With FLO-CILLIN "96" you can avoid the frequent injections that make some penicillin patients feel like pincushions. A single 1 cc. injection every 48 hours constitutes full penicillin dosage in all but exceptional cases. And this gives ample margin for safety, because this single injection of 1 cc. provides therapeutic blood levels for 96 hours in 90% of patients.

Free-flowing FLO-CILLIN "96" spares you many annoyances too. It is constantly fluid, needs no prolonged shaking, won't "settle out." Whether your syringe is wet or dry, it won't clog the needle. It saves your time in office and home treatment, and of course it saves valuable nursing time in the hospital.

You can obtain this remarkable new repository penicillin from your usual source of supply. In rubber-capped 10 cc. vials, and in 1 cc. cartridges for use with the B-D Disposable Cartridge Syringe and the B-D Metal Cartridge Syringe.

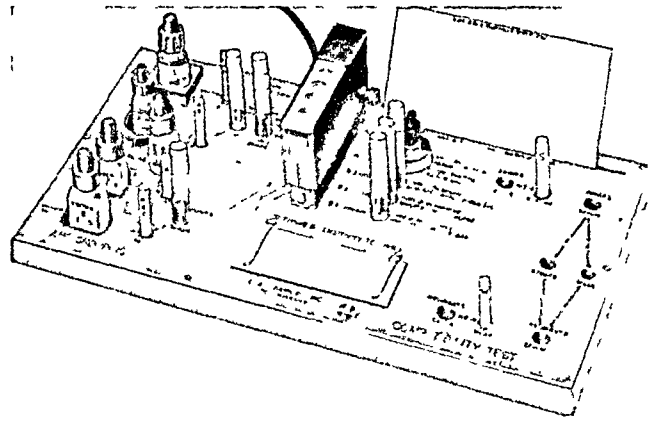
Flo-Cillin "96"

Bristol Laboratories Trademark For

CRYSTALLINE PROCAINE PENICILLIN G IN OIL
(300,000 units per cc.)
WITH ALUMINUM MONOSTEARATE, 2%



BROWN Blood Grouping and Cross Matching BOARD



- Minimizes the possibility of technical or clerical errors.
- Embodies all the latest approved technics of blood grouping, Rh typing, Rh sensitivity testing and cross matching for transfusion.
- Simplifies and combines these technics in an orderly sequence.
- Facilitates the grouping and cross matching of blood for emergency or routine use.
- Can be used for routine Rh typing and sensitivity testing in individual maternity cases.

The Brown Board [1] was developed in the Duke University Hospital Blood Bank to increase efficiency and reduce errors in blood typing and cross matching. It consists of an etched and stamped metal plate on a hardwood base, with an Rh typing box, anti-serum bottle adapters, reagent bottles, test tubes, dropping pipettes and concavity slides for Rh typing.

Tubes and reagent bottles have in-the-glass labels in different colors, matching the labelling and coloring of their places in the board. Each reagent bottle and cross matching tube is of a different shape and size, so that it fits only in its proper place. Anti-serum bottle adapters hold any commercial anti-serum bottle; they are permanently marked, fit only in their own place in the Board and are colored to conform to the coloring recommended for the sera by the National Institute of Health. Reagent bottles and adapters are designed to permit one-hand removal and replacement of the dropping pipettes.

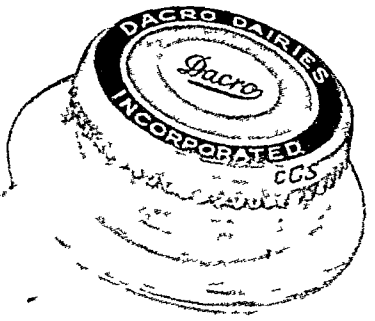
The Rh typing box [2] is lighted, tiltable and designed to maintain a temperature of 37° to 42° C in the slide concavity where the blood sample is placed.

The Board has a slot to hold the Donor Card and Transfusion Request Form directly in front of the technician while tests are being made. A blotting paper holder is also provided, conveniently near the technician.

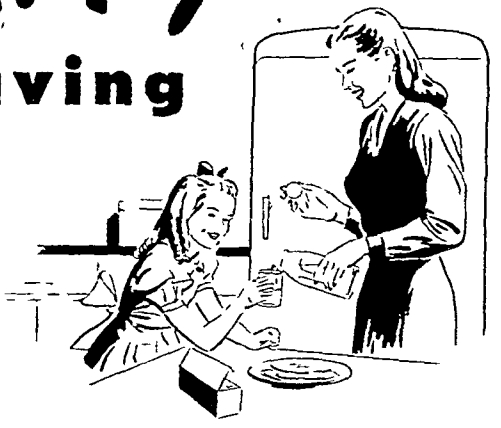
1. "A Note on Blood Grouping and Cross Matching with Special Reference to a Convenient Cross Matching Board." Brown, I. W., Jr., M.D. In press.
2. "The Demonstration of Anti-Rh Agglutinins—An Accurate and Rapid Slide Test," Louis K. Diamond, M.D., Boston, Mass., and Neva M. Abelson, M.D., Philadelphia, Pa., Jl. of Laboratory and Clinical Medicine, Vol. 30, No. 3, March 1945.

A-2800 Brown Blood Board, complete with Rh typing box, anti-serum bottle adapters, reagent bottles, test tubes, dropping pipettes and four-concavity slides. Each $90.00

CLAY-ADAMS COMPANY, INC.
141 EAST 25th STREET · NEW YORK 10
Showrooms also at 308 West Washington Street, CHICAGO 6, ILL.



SECURITY
. . . at a saving



Forms an *air-tight* seal

Covers the pouring lip of the bottle

Eliminates seepage

Does away with "cap seat"

Makes a perfect re-seal

When bottled milk is capped with Dacro P-38 it is *securely sealed* against a wide variety of hazards that can easily affect milk purity. Both the Steel Dacro P-38 and Aluminum Dacro P-38 give this dependable protection . . . and at a saving. Dacro P-38 saves on cap cost because of its smaller size. But even more important are the economies it offers the dairy plant operator through the proven efficiencies of the Dacro Capping System.

CROWN CORK & SEAL COMPANY

Dacro Division • Baltimore 3, Md.

Prove CAMEL MILDNESS *for Yourself!*

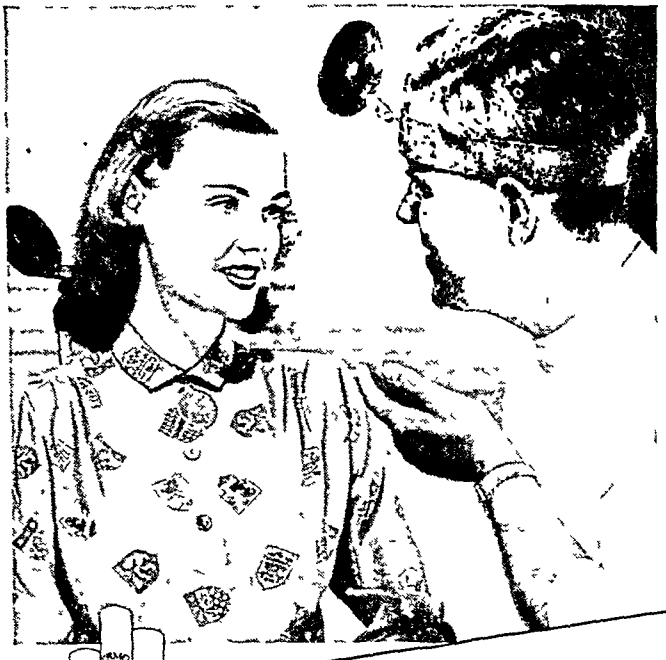


Money-Back Guarantee!

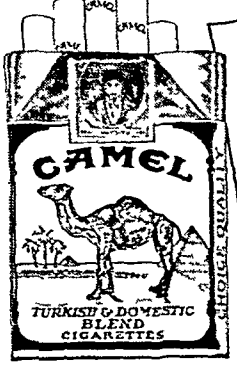
Test Camel Mildness for yourself in your own "T-Zone"—T for taste, T for throat. If, at any time, you are not convinced that Camels are the mildest cigarette you ever smoked, return the package with the unused Camels and we will refund its full purchase price, plus postage. (*Signed*) R. J. Reynolds Tobacco Company, Winston-Salem, North Carolina.

In a recent coast to coast test of hundreds of people who smoked only Camels for 30 days, throat specialists, after weekly examinations, reported:

"Not one single case of throat irritation due to smoking CAMELS!"



Hundreds of men and women were included in this coast to coast test. These men and women smoked Camels—and only Camels—for 30 consecutive days. They smoked on the average of one to two packages a day. Each week noted throat specialists examined the throats of these Camel smokers—a total of 2470 careful examinations. In every report, the findings of these throat specialists were the same—"not one single case of throat irritation due to smoking Camels."



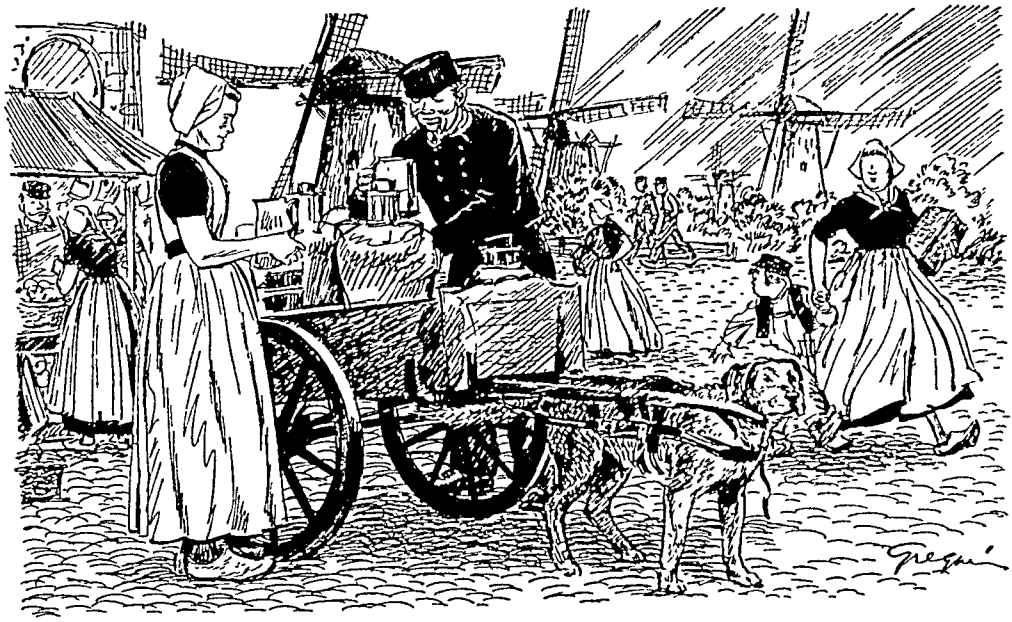
According to a Nationwide survey:

MORE DOCTORS SMOKE CAMELS

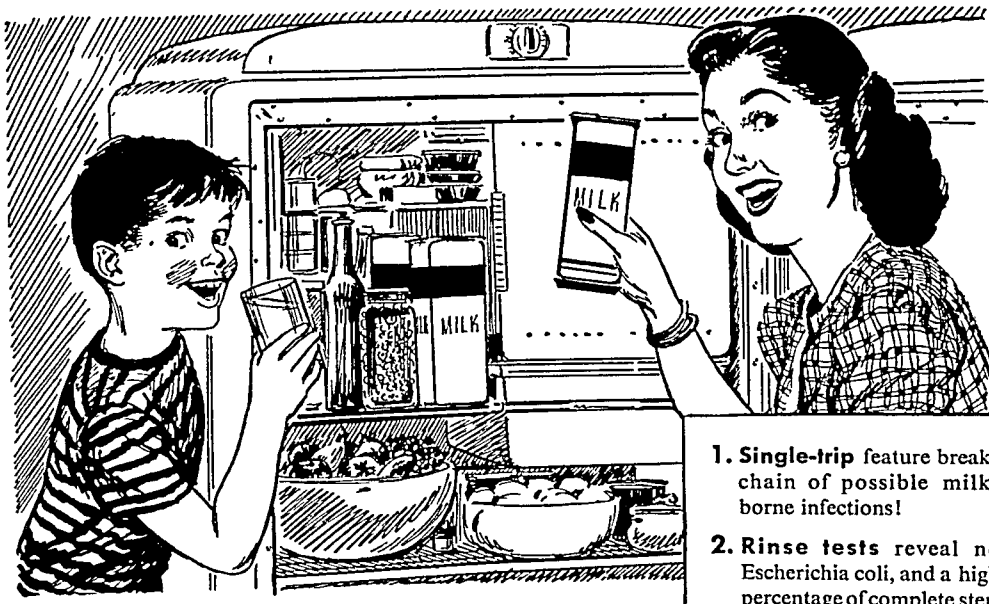
than any other cigarette



Doctors smoke for pleasure, too! And when three leading independent research organizations asked 113 597 doctors what cigarette they smoked the brand named most was Camel.



In Delft a well-fed hound draws a two-wheeled cart containing two large red copper cans. Measuring cans hang from the sides. This picturesque, two-way system is easily contaminated by germs causing milk-borne infections.



In America you'll find safe, sanitary Canco flat-top Paper Milk Containers . . . the one-way system whose nation-wide acceptance has been aided by Public Health officials.

1. **Single-trip** feature breaks chain of possible milk-borne infections!
2. **Rinse tests** reveal no Escherichia coli, and a high percentage of complete sterility in containers delivered to the dairy.
3. **Opened, filled,** and closed in minimum time by machines!

CANCO

American Can Company New York, Chicago, San Francisco



An Important Meal in Health...

Doubly Important in Convalescence

BREAKFAST skimping has no place in convalescence, since a poor morning meal may impose an impossible task on the other two meals in providing the daily nutrient needs.

A good starting point in planning breakfast for the convalescent is a widely acclaimed basic breakfast pattern consisting of fruit or fruit juice, cereal, milk, bread and butter. Other suitable foods may be added to bring the caloric and nutrient contributions to the desirable one-fourth to one-third of the day's nutrient requirements.

This pattern breakfast is rarely contraindicated. It is exceptionally well balanced as evidenced by the table of nutrient composition, and may be varied almost endlessly to provide renewed taste appeal. The cereal serving, consisting of breakfast cereal,* milk, and sugar, is an important component of this meal.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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A RESEARCH AND EDUCATIONAL ENDEAVOR DEVOTED TO THE BETTERMENT OF NATIONAL NUTRITION

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BASIC BREAKFAST	TOTALS supplied by Basic Breakfast		AMOUNTS supplied by cereal serving
Orange juice, 4 fl. oz.;	CALORIES	611	202
Ready-to-eat or Hot Cereal, 1 oz.;	PROTEIN	20.7 Gm.	7.1 Gm.
Whole Milk, 4 fl. oz.;	CALCIUM	0.465 Gm.	0.156 Gm.
Sugar, 1 teaspoon;	PHOSPHORUS	488 mg.	206 mg.
Toast (enriched, white), 2 slices;	IRON	3 mg.	1.6 mg.
Butter, 5 Gm. (about 1 teaspoon);	VITAMIN A	1074 I. U.	193 I. U.
Whole Milk, 8 fl. oz.	THIAMINE	0.52 mg.	0.17 mg.
	RIBOFLAVIN	0.87 mg.	0.24 mg.
	NIACIN	2.3 mg.	1.4 mg.
	ASCORBIC ACID	64.8 mg.	

**Composite average of all breakfast cereals on dry weight basis.*

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Clinical reports show that Propion Gel usually produces symptomatic relief in three days or less . . . negative cultures after three weeks in many obstetric, in nearly all gynecologic, cases. Also that Propion Gel is innocuous, convenient, nonstaining.

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(a) provide biologically adequate proteins and fats rich in the unsaturated fatty acids;

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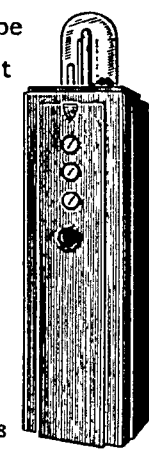
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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 February, 1949 Number 2

Lemuel Shattuck—Still a Prophet

Lemuel Shattuck — America's Great Public Health Pioneer *

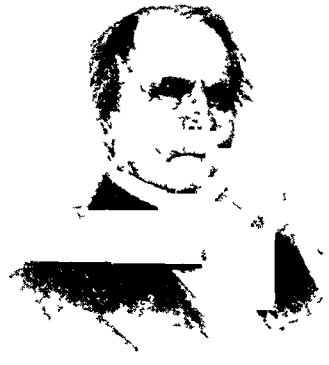
W. G. SMILLIE, M.D., F.A.P.H.A.

Department of Public Health and Preventive Medicine, Cornell University Medical College, New York, N. Y.

WE are met to commemorate a centennial of public health progress in America, and to pay tribute to America's foremost public health pioneer. For it is now quite clear that the cornerstone of the splendid edifice of public health in this nation was laid in the City of Boston one hundred years ago, with the publication of the famous *Report of the Sanitary Commission.*

I am sure that many of you are asking, "Why should we be interested in, and dwell upon the past, with all its mistakes, its tragedies, and sordid miseries? Why not consider instead the triumphs of the present, and plan for an even more brilliant future?"

With full realization of the great value of thinking for, and in the future, I bespeak your attention, for a brief period only, to the value of retrospect. For a knowledge of the past not only enables us to determine present trends, but is of inestimable value in helping us plan intelligently for the future. The very nature of our work requires that we become immersed in details. Our vision becomes narrow; our concepts and our viewpoints tend to be tinged with arrogance, self-satisfaction, and impatience with the views of others. We have no true understanding of our function in the world, and no breadth of knowledge of social progress. There



LEMUEL SHATTUCK
1793–1859
From *Pioneers of Public Health,* M. E. M Walker, The Macmillan Company, 1930.

* Presented before the American Public Health Association at the Seventy sixth Annual Meeting in Boston, Mass., November 10, 1948

comes a time when we must pause, and go up to the mountaintop, to obtain complete detachment from our immediate tasks, and to look to the East whence we have come, and to the West, whither we are going.

In so doing, we gain a broader vision, and better understanding of our task. We gain also *humility,* for we soon realize that the original ideas that we thought out so painfully have been presented quite effectively many years ago. We gain *patience* and true perspective in the realization that social progress in a democracy is slow, proceeding arduously, step by step. Advances can never move faster than the social consciousness of the average man. We also gain *courage* and *hope* that some of our own ideas that we have fought for, and which have been completely defeated, will at some future time, and long after we are forgotten, emerge as an integral part of community service.

In this discussion we shall present only a small segment of time, and the activities of a single man. But these events serve to illustrate the broad and basic principles of public health progress, and will point to clear-cut analogies which show us the way to further gain. We shall show you also the place in human affairs of the seer, the prophet, the pioneer. We shall not present a leader, since the leader comes after the philosopher. The philosopher formulates his ideas far in advance of current thinking; thus he seldom lives to see realized even a single one of his concepts, no matter how fine and sound they may be. The leader who comes after must carry out the ideas, but he cannot get too far ahead of the people, else he loses his contact with them.

The pioneer has a lonely life. He is misunderstood, misinterpreted, sometimes persecuted, at best treated with friendly, but ill-disguised tolerance. All these things came to Shattuck. He was treated with scant courtesies by physicians, and laymen. His report was buried in the dusty archives of official documents, and he died long before even one of his fifty recommendations was accepted by the community.

My assigned task is to introduce to you the man, to present a brief outline of his life and achievements, and to paint with broad strokes the background of the period in which he lived.

Lemuel Shattuck was born in Ashby, Mass., in 1793,[1] and died in Boston in 1859. His parents were farmers. He had a very limited formal education, but through self-education he qualified himself as a school-teacher and went west to the frontier town of Detroit about 1818 to teach in the district schools. He became interested at once in community welfare.

He organized there, in the wilds of that great wilderness, the first Sunday School in the State of Michigan, and was its superintendent for four years. He returned to the East, married, and settled in Concord. Here he ran a general store for some ten years.

As a member of the school committee in Concord, he reorganized the public school system of the town, and was active in the community affairs.

In 1833 he moved to Boston and entered the book publishing and book selling business. He became a member of the City Council and took an important part in the long controversy over the introduction of pure water into the city.

Shattuck's interest in vital statistics was aroused through his initial interest in genealogy. He attempted to collect accurate data for the history of his own family, and he also wrote, in 1835, a *History of the Town of Concord.* Finding great confusion and inadequacy in the church records of births and deaths, he began a personal and almost solitary campaign to obtain the official recording of vital data. In 1842 he was successful in securing the passage of an act for a

registration system of vital statistics for Massachusetts, which became a model for all other states. Since there was no State Board of Health, the Act provided that the returns should be made to the Secretary of State. This plan remained in effect in Massachusetts for over one hundred years.

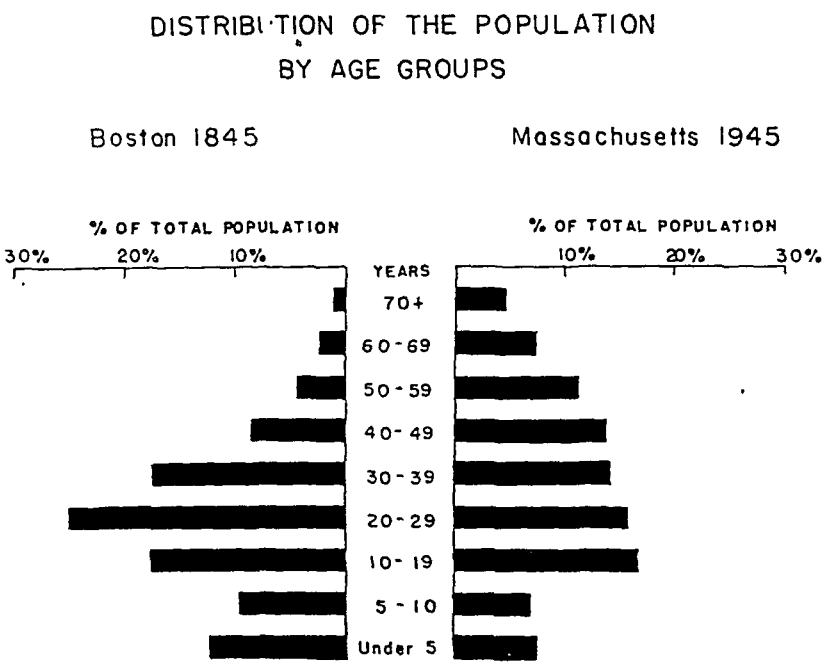
The *Report* of the "Census of the City of Boston"[2] in 1845 was a precursor of his more famous report of 1850, but in many ways it is equally important, for, in it, one can obtain a very clear picture of the economic and social conditions of that day.

The nation was in a period of vigorous growth. James Polk was President from 1845 to 1849. His diary[3] emphasized the following important events during his term:

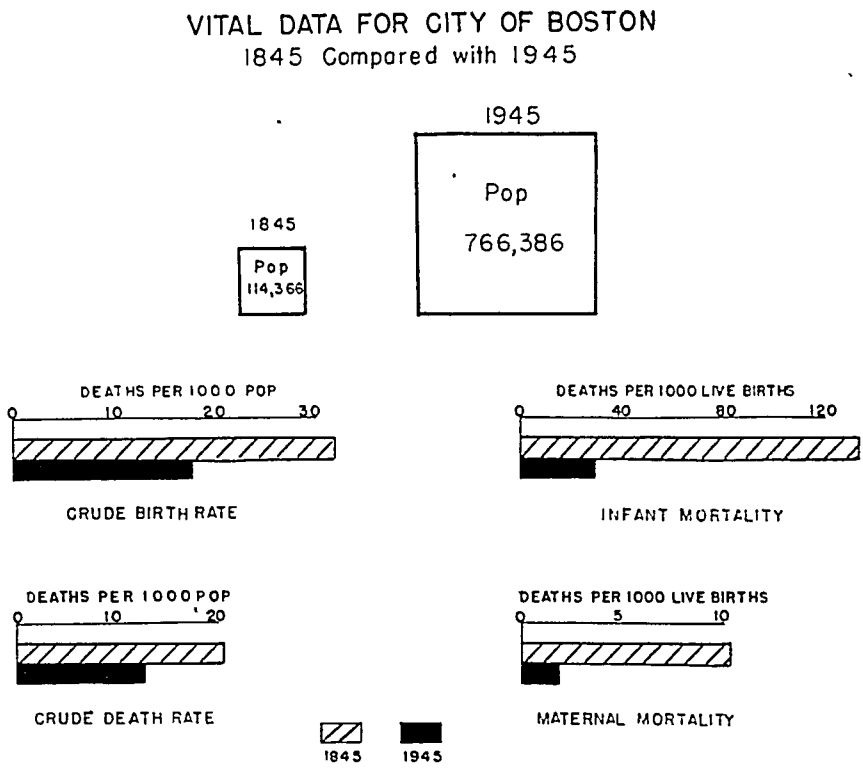
1. The termination of the war with Mexico and acquisition of California and the Southwest
2. The annexation of Texas
3. The settlement of the Oregon boundary
4. The increase of national feeling concerning the whole question of slavery

During his term, gold was discovered in California, and the great migration to the far West began.

Immigration[4] from Europe was at flood tide. From 1790 to 1810; some six thousand persons came to America each year from Europe, but this flow was completely stopped by the war with Britain in 1812. Laws regulating immigration were passed in 1819, but during the subsequent ten years only 150,000 persons entered The States. Then came the political persecutions in Germany and the potato famine in Ireland. These initiated the avalanche. Over four million persons came from Europe to America from 1819 to 1855. Of these, 1,700,000 were Irish, and 1,200,000 were Germans. In 1848 alone, 230,000 entered our borders. The peak was



GRAPH I—*Distribution of the Population by Age Groups.* This graph shows preponderance of the younger age groups in the population a century ago. Data for 1845 from Lemuel Shattuck's Census of Boston. Data for 1945 from the Massachusetts State Board of Health's Annual Report.



GRAPH II—*Vital Data for City of Boston.* The vital data for 1845 were obtained from Lemuel Shattuck's Census of Boston; 1945 data were secured from Boston's Health in 1945, official report of the Boston City Health Department.

reached in 1854 with a total of 400,000. Males outnumbered females 2 to 1. More than half of the immigrants were between 15 and 30 years of age. Laborers made up the largest quota, with very few skilled workers, and almost no professionally trained people.

Industrialization of the Atlantic Seaboard had begun, and the textile factories of New England absorbed large numbers of these immigrants. There were no child labor laws. Children went to work in the factories at 8 years of age, and the working day was 12 hours or more.

Housing laws were nonexistent. There were no departments of health; when epidemics occurred, a special board of physicians was selected to deal with the immediate situation. Isolation, quarantine, and even the reporting of communicable disease was opposed because "(a) these regulations interfered with private rights, and (b) they were injurious to business." It was generally held that a disease such as scarlet fever, which was highly prevalent and severe, "occurs under no fixed laws, and seems inclined to abide with us."

The nation was young, vigorous, boisterous, callous, exuberant, with all the virtues and all the faults of a gangling adolescent, who has outgrown his clothes, broken away from his parents, and has awkwardly tried out his strength. He is uncertain and insecure, but bursting to demonstrate his great importance to the whole world.

Massachusetts was one of the more conservative and settled sections of the nation, but foremost in the coming industrial revolution. It must also be remembered that it was largely New England men who gave the impetus and

leadership to the western expansion.

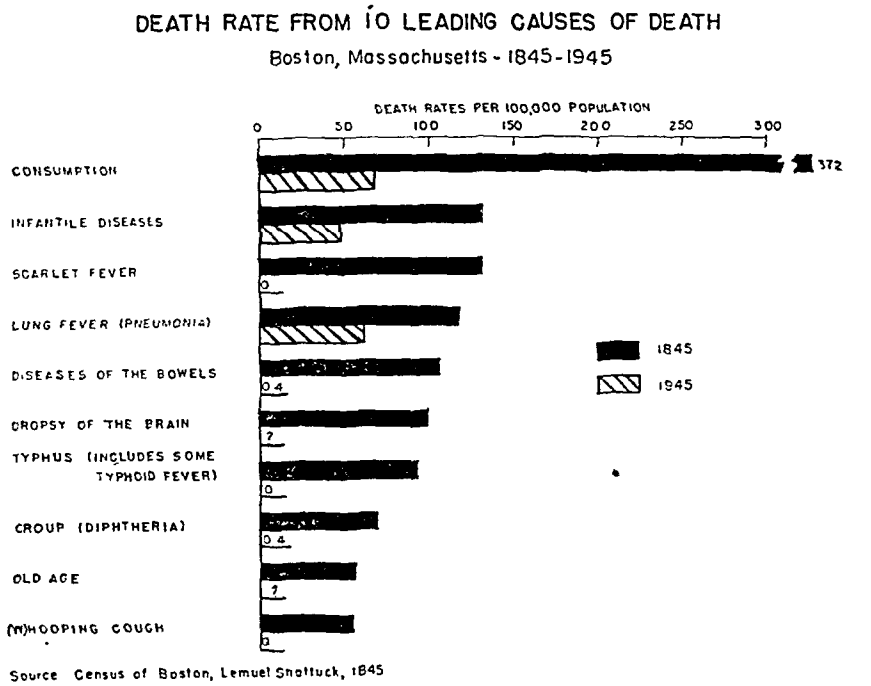
As I have said, the Shattuck *Report* of 1845 on "Census of the City of Boston" gives us an accurate picture of the mode of life and the state of civilization in the nation as a whole.

From the *Report* of 1845, we have compiled certain simple vital data which are comparable with similar data for the Boston of 1945, just a century later.

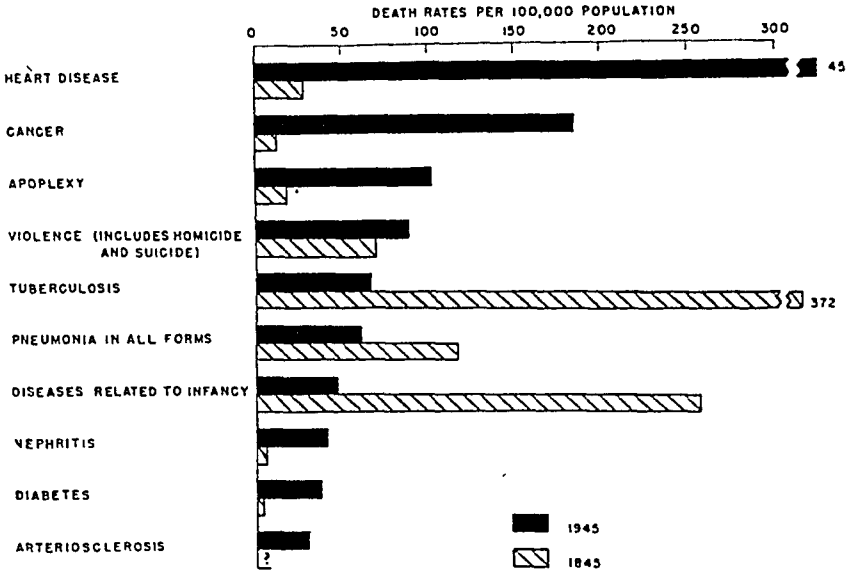
The city has grown sevenfold. The distribution by age groups of the population in 1845 and 1945 is shown in Graph I. The graph shows that the city, once composed of young, vigorous men, is now staid, and well past middle age. The Boston of 1845 was not only made up of young people, but they had large families. Males greatly outnumbered females; most of these young men were recent immigrants from Ireland. The birth rate was very high (see Graph II), with a correspondingly high death rate and a shocking infant mortality rate. The maternal mortality rate was a tragedy. In the slums of the city, Shattuck says the birth rate was over 60 per 1,000 population, and the infant death rate was estimated to be between 300 and 400. In the immigrant section, he estimates that one mother in 37 died from childbirth.

We have tabulated the important causes of death in 1845 and, in so far as possible, have compared them with similar causes of death in Boston in 1945 (see Graph III). The striking features of this chart are:

1. The high prevalence of communicable diseases
2. The heavy toll in 1845 of tuberculosis
3. The seriousness of scarlet fever
4. The absence of degenerative diseases as leading causes of death



GRAPH III—*Death Rate from 10 Leading Causes of Death, Boston Massachusetts 1845–1945.* This graph shows an almost entire disappearance in 1945 of the important causes of death 100 years ago. Data from Census of Boston, Lemuel Shattuck, 1845; and Annual Report of Massachusetts State Board of Health, 1945.



GRAPH IV—*Death Rate from 10 Leading Causes of Death, Boston, Massachusetts 1945–1845.* This companion graph to Graph III shows that degenerative diseases have replaced communicable diseases as important causes of death after a 100 year period. Only tuberculosis, pneumonia, and diseases related to infancy are still in the first ten causes. Comparisons in Graphs III and IV are not completely reliable, since the terminology has changed during the past 100 years.

The terminology of 1845 is somewhat obscure. The term "diseases of the bowels" includes for the most part typhoid fever and bacillary dysentery, but excludes inflammation of the bowels (appendicitis).

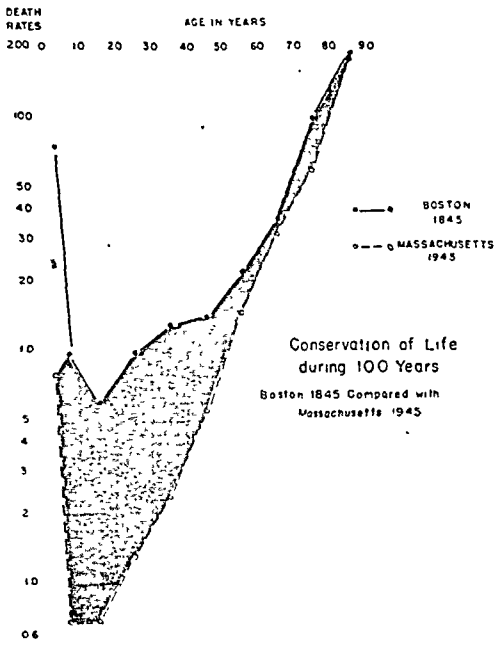
Dropsy of the brain or hydrocephalus, which is given as an important cause of death, is described by Thatcher[5] as "a very serious disease of childhood, commencing suddenly, and terminating fatally in a very few days. Such is the ambiguity of its symptoms that it is difficult to determine what are its real characteristics. The indisposition of the child is sometimes attributed to teething or to a disordered state of the bowels. Frequently it resembles the common febrile complaints of childhood."

This disease dropped out of the nomenclature within a few years. It was like the "Hives," which was frequently given as a cause of illness even in the last generation. If the child had a fever with rash, it was the "Hives," without a rash, it was "Inward Hives." If the child died, it had "the Bold Hives."

In Graph IV we have compared the common causes of death in Boston in 1945 with similar causes of death in 1845. The graph speaks for itself.

The degenerative diseases have almost completely replaced the contagious diseases as important causes of death. A comparison of 2045 with 1945 will be equally interesting.

In Graph V we have presented a summary of deaths in 1845 by age groups and compared these rates with 1945. The data for 1845 are from Boston; those of 1945 are from the whole State of Massachusetts. The rates are determined for each 1,000 of the popula-



GRAPH V—*Conservation of Life during a 100-year Period.* This semilogarithmic graph indicates that the proportionate conservation of life in Boston has been greatest in the early decades, but continues throughout life. Sources: Census of Boston, Lemuel Shattuck, 1845. Annual Report of the State Board of Health, Massachusetts, 1945.

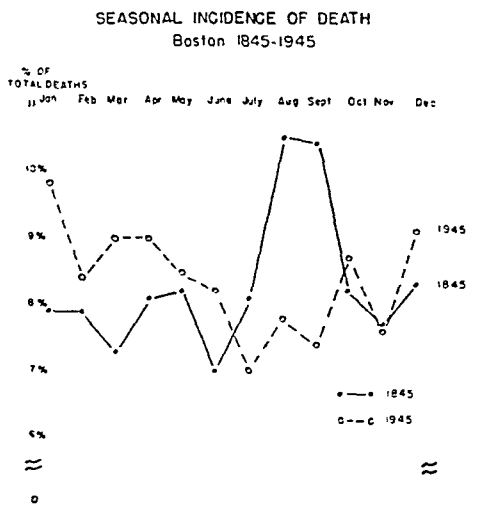
tion within that age group. The graph may be entitled "Conservation of Life." It shows clearly that the saving of life has not been limited to infants and school children but extends throughout the life span. Only in the seventh and eighth decade of life does the death rate correspond in 1945 to that of a century ago. How interesting it will be to make a comparison of this type in 2045.

We have also made a comparison of deaths in 1845, by months, with similar data for 1945 (Graph VI). In the last century, the summer months were most dreaded, and winter was by far the most healthy period. A hundred years later this picture is exactly reversed.

From these simple comparative data, it is quite clear that the great public health need in Boston a century ago was a well organized, effective community plan for control of communicable disease.

As already noted, Mr. Shattuck had appreciated the primary importance of pure water, and had been active in the City Council for ten years in securing a municipally owned adequate water supply to be piped from Framingham. It required a period of ten years to consummate this plan (1848).[6]

Boston was in advance of other communities also in diverse aspects of environmental sanitation. In 1848, the great cholera epidemic began. The infection came from Europe, and spread south and west to devastate the whole nation. The Boston City Council forthwith organized itself as a Board of Health. Every policeman was made a sanitary inspector, and the town had such a thorough house-cleaning as it had never experienced. Streets and alleys were scrubbed, rubbish was burned, and privy vaults were emptied. Cholera came, but did not obtain a firm foothold. The pest house opened June



GRAPH VI—*Seasonal Incidence of Death.* This graph shows the monthly percentages of total deaths in Boston for 1845 and 1945. The graphs are exactly reversed in that in 1845 the winter was a period of low death rate, August and September showed the highest death rates; in 1945 the lowest death rates are now in the summer.

29, and could be closed on November 15, with only 262 admissions, of whom 166 had died.[7]

The physicians of the community were not interested in preventive medicine, but confined themselves to the treatment of disease. Doctors were numerous. In the classification of occupations in Shattuck's Census of 1845, there were 680 persons in the city of 114,000 population whose occupation "contributed to health." This list included, of course, some auxiliary professions, such as sextons, undertakers, botanic medicine dealers, leechers (15—all women), and one electrician. But there were 236 *bona fide* doctors, 169 druggists, and 57 dentists. Ninety women were classified as nurses, all of course with practical training only. Ten of the doctors were women. Thus, the medical profession, in proportion to the population, outnumbered the physicians of Boston today. But what doctors!

It must be remembered that there were few restrictions on medical practice. Physicians were trained by studying with another doctor as praeceptor. Formal medical training consisted of a four months' course of lectures. With a few exceptions, the medical colleges were not under university auspices. A few leading doctors in any community would simply organize a medical school, give a series of lectures, and divide the fees. The American Medical Association was founded in 1847. Its original purpose was, primarily, to raise the educational and ethical standards of the medical profession, and to curb, in some degree, the disgraceful practices of badly trained, grossly unqualified physicians.

Medical[8] research in all of America was practically nonexistent. The American Association for the Advancement of Science was founded in 1848 and is celebrating its centennial this year. But it was made up largely of geologists, with almost no physicians in its membership. (It is true that John Collins Warren, a surgeon of Boston, in 1837 attended a meeting of the recently founded British Association for the Advancement of Science in London and, on his return, agitated for a similar society in America, but to no avail.)



GRAPH VII—*Death Rates in Boston.* Comparison of death rates in Boston over a period of three centuries. The data for the 18th century are taken from church records and are probably underestimated. The 19th century data are from Shattuck's Census of Boston, 1845; 20th century data are from Boston's Health in 1945, 74th Annual Report of City Health Department. The striking feature of this graph is the extraordinary high death rate of the pioneer period.

Shryock[9] states that in 1840, "Medical research had not permeated even the best medical centers. The schools remained didactic, clinical teaching barely existed, and pathological investigation was sporadic." Samuel Jackson, commenting favorably upon the inten-

sive medical research in Germany, added indignantly, "not one man is now conducting similar studies in the United States."

Oliver Wendell Holmes[10] published his essay *The Contagiousness of Puerperal Fever* in 1843, but his observations fell on sterile ground. Epidemiological concepts were fragmentary and most inaccurate. The difficulty was that the theory of contagion did not explain the fact that diseases such as plague, cholera, typhoid, and yellow fever frequently were not transmitted following direct contact, whereas cases of these infections often arose with no demonstrable contact with another case of the disease.

Furthermore, scientific research was not fashionable. The commercial spirit pervaded the whole nation. Money was the goal of every man. It was the only criterion of success. The physician's only means of support was clinical practice, and there was little or no prestige in research. Those who might engage in clinical investigation as a primary pursuit were regarded by their fellows with scorn and suspicion, or at best, as hair-brained eccentrics.

The average income of physicians was estimated in 1845 to be about $800 per annum, of which $600 was net profit. But a dollar in 1845 had greater purchasing power than a century later.

Jarvis,[11] a physician, wrote a series of articles in the *Atlantic Monthly* in 1869 on the "Increase in Human Life." He pointed out that a good mechanic in 1821 worked a full day to earn the equivalent of a bushel of wheat; whereas in 1861, he could earn a bushel of wheat in one-half day. By 1948, a skilled artisan can earn the equivalent of a bushel of wheat in about 48 minutes of an 8 hour day. Thus in 1848 as in 1948, the wages per hour of a skilled laborer are greater than the hourly rate of average annual income of a practising physician.

Hospitals were for the poor. The Boston Dispensary had served for many years as a public clinic for the sick poor, and the Massachusetts General Hospital, in 1848 as in 1948, was one of the leading philanthropic hospitals of the nation. The concept was just emerging that the community was directly responsible for providing a municipal hospital for care of the sick poor, and a proposal had been advanced for establishment of the present Boston City Hospital. Treatment of mental disease had not been widely recognized as an official state responsibility.

In brief, the City of Boston in 1845, representing the more cultured portions of the United States had no concept of community responsibility for the promotion of the public health. There was no local or state department of health. Communicable disease took an enormous toll, particularly in the early decades of life. There was no real understanding of the epidemiology of infectious diseases, and methods of control were primitive and ineffectual. Official registration of vital data had just been introduced, but reporting of contagion was not established. Physicians were poorly trained, with no interest whatever in public health or preventive medicine. Medical research, in fact all scientific research, was nonexistent. Some attempts were made to provide for the general sanitation of the city under official auspices, but the relation of the basic factors in environmental sanitation to prevention of illness was poorly understood.

It was in this completely inhospitable environment that Shattuck compiled his report in 1850. He was actively opposed by physicians, as well as by his peers in the legislature. Bowditch notes[12] (in 1876), "I remember Mr. Shattuck well. Calm in his perfect confidence in the future of preventive medicine to check disease, he walked almost alone the streets of his (native) city,

not only unsustained by the medical profession but considered by most of them an offense for his earnest advocacy of what seemed to the majority of physicians to be out of a layman's sphere, and withal of trifling moment, compared with the importance of our usual routine of practice. The public, ignorant of hygiene, treated him no better."

One can readily discern the source of Shattuck's stimulus. He was an omnivorous reader, and his interest in vital statistics led him inevitably to study the pioneer activities of another layman, Chadwick of London, the founder of sanitary science in England. Chadwick published his famous report on *The Sanitary Conditions of the Laboring Classes of Great Britain* in 1842. Shattuck was familiar also with the work of the great British vital statistician, William Farr, and drew many of his ideas and much of his inspiration from Thomas Southwood Smith and from John Simon. The list of books which Shattuck recommends for sanitary libraries and which is appended to the 1850 report, shows clearly that he was quite familiar with the advances in sanitary knowledge that had occurred during the recent years in Europe, and particularly in France, Germany, and England. From these sources of information and methods of procedure, he drew the inspiration to write the *Report of the Sanitary Commission.*

He secured the assignment to write this report by devious measures. Shattuck in 1847 was a member of the Boston City Council and had been selected to represent the city in the State Legislature. The American Statistical Association, of which Shattuck was a member, suggested to the State of Massachusetts in 1848 that a "Sanitary Commission" be appointed, "to prepare and report to the next General Court a plan for a sanitary survey of the state, embracing a statement of such fact and suggestions as they think proper." This wording is, fairly obviously, Shattuck's own. The proposal was accepted, and a Commission of three appointed by the Governor: one Whig, one Democrat, and one Free Soiler. They were Lemuel Shattuck of Boston, Nathanial P. Banks of Waltham, and Jehiel Abbott of Westfield. Mr. Shattuck was chairman. One can be quite certain that Mr. Shattuck arranged for the original suggestion, engineered the committee appointment, and had his outline of the survey all prepared and the *Report* partially written long before authorization was secured. Of Mr. Banks and Mr. Abbott we know little, either before or after the report was written. Apparently, they played no part whatever in the organization or formulation of the survey, though they are listed as joint authors and are, in theory at least, equally responsible with Shattuck for the ideas that it contains.

This is the setting and these are the events that led to the writing of the Shattuck *Report*. My colleagues on this symposium will now interpret the report to you.

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Lemuel Shattuck—Still a Prophet

Sanitation of Yesterday — But What of Tomorrow? *

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NOT quite 100 years ago the Governor of the Commonwealth of Massachusetts was authorized to appoint three persons to prepare and report a plan for a sanitary survey of the state. The distinguished Bostonian, Lemuel Shattuck, with two associates, Nathaniel P. Banks, Jr., and Jehiel Abbott, prepared such a document covering an examination or survey of the different parts of the Commonwealth "in order to ascertain the causes which favorably or unfavorably affect the health of its inhabitants."

The Commonwealth was fortunate in the choice of Lemuel Shattuck as the chairman of the group. On the submission of the report on April 25, 1850, there emerged one of the most statesmanlike and significant contributions to sanitary science within the last century. The report demonstrated a vision and an imagination rarely surpassed in documentary public health material. It covered the wide range of physical impacts which have confronted man from the beginning of history. It included a number of items which even today continue to constitute part of the major stresses under which man still lives. It listed cogent reasons for sustained public interest in and control of nuisances, the atmosphere, water supply, and sewerage, buildings, housing, stream pollution, salt water travel, tenements, refuse collection and disposal, smoke, public health education, and innumerable additional philosophical and administrative aspects of preventive medicine.

Viewed in retrospect, the wide coverage of the report is impressive but not surprising, inasmuch as it reflected the comprehensive interests, particularly of the chairman of the Commission. Most people are perhaps still unaware that Shattuck was a member of the Common Council of Boston and as early as 1838 initiated the first resolution for the creation of a major water supply for the City of Boston. He combined in himself, therefore, not only the imagination and vision required for anticipating the necessities of the future, but had also an equally keen awareness of the necessity for preparing the way for acceptance of these ideas by the public and by the profession.

THE CENTURY'S ACCOMPLISHMENTS

In the light of this marvelous charter for public health action in the State of Massachusetts, what happened in the intervening century since its presentation? And, more important, what of tomorrow's objectives?

The record of the past is excellent, but unbalanced and incomplete. During

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the past 100 years, professional groups were unanimously agreed that a safe and healthy environment for everyone was a prerequisite to most other activities aimed at preserving and improving the public health. And much was accomplished under this banner. It would be fruitless to enumerate statistically all of the details of these accomplishments. That they were significant only a few selected observations will demonstrate.

As late as 1900 there were only 3,200 public water supplies in the entire United States, purification plants were few, the quality of the water was generally poor and the death rates from water-borne diseases were high. Today some 85 million people are supplied with water through some 14,000 systems, providing a generally excellent quality.

The death rates from the filth-borne diseases, such as typhoid fever, dysentery and diarrhea-enteritis, have dropped to insignificant figures. A half century ago 23,000 people died of typhoid fever in this country and 100,000 died from diarrhea-enteritis and the dysenteries. In 1944 the deaths from typhoid fever were less than 600 and from the other enteric diseases approximately 15,000.

The situation in regard to the removal of sewage from built up communities has shown a similar improvement. Sewerage systems were available to only 25 million people in 1900, with only 60 sewage treatment plants serving about 1,000,000 people. Today more than 70,000,000 people are served by sewerage systems, and more than 5,500 treatment plants have been installed. These serve about 42,000,000 people.

In the field of milk pasteurization, not a single first class commercial plant was in operation 50 years ago, and today more than 70 per cent of our market milk supply is pasteurized.

WHAT OF TOMORROW?

Measured by these indices the accomplishment is good. A more realistic view of the future, however, discloses no overwhelming basis for basking in the glory of the past. When we ask what of the future in the control of the environment, we do so in the fond hope that the future may hold simpler and fewer tasks, more refined efforts, and even diversions of major character toward new and unexplored fields. The interested worker in sanitation might hopefully turn to the future with the assumption that his task was accomplished, except that the record of familiar things yet to be done is disconcertingly staggering. The evaluation of the prospects of the future must necessarily be made upon a broader base than that of the State of Massachusetts, even though that state alone gives many of the indices of future conquest which may be paralleled in the rest of the United States and may be multiplied a thousandfold in many parts of the rest of the world. It is curious that, when we look to the future, we rediscover the essential elements of program in the Shattuck survey of the past. What are the things that remain to be done and what are the additional objectives in sanitation?

WATER SUPPLY AND WASTE DISPOSAL

In the State of Massachusetts, as in the rest of the United States, it is doubtful whether there is a single stream today which has not deteriorated in a major sense in its quality since 1849. There is hardly a city in Massachusetts, or one in the rest of the United States, in which the conditions of housing are not essentially worse than those at which the Shattuck report directed severe criticism. There is not a city in Massachusetts or one in the rest of the United States, with pathetically few exceptions, in which the conditions of the atmosphere are not immeasurably worse today than they were when Mr. Shattuck leveled his attack on this phase of the environment.

On January 15, 1872, the famous artist and explorer, F. S. Dellenbaugh, recorded in his diary on the exploration of the Colorado River[1] that "The frontier town was a ghastly hodge podge of shacks in the midst of a sea of refuse." In 1948 several of my young friends canoeing down the Connecticut River recorded the same phrases in their diary, and I hasten to add that the same could be said about a number of other major streams.

Although somewhat over $10,000,000,000 have already been spent in this country for water supply and waste disposal facilities, a recent review[2] of the additional sanitation facilities required in these fields in 1947 shows them still in excess of $8,000,000,000. There are still almost 6,000 communities in this country with no public water works system. There are over 9,000 communities which need sewerage systems. In rural areas more than 33,000,000 people lack satisfactory sewage or excreta disposal facilities of even the simplest types. Some 70,000,000 people in 8,300 communities need modern facilities for collecting and disposing of garbage and other municipal refuse.

Houses have been built in the last 10 years with inadequate sanitary facilities which promise to become the slums of tomorrow, and of a not too distant tomorrow. The rural areas of this country have so far been beyond the reach of the practicable community facilities. In these areas the greatest shortages of sanitation facilities exist. And not all of these difficulties are attributable to the lack of money. They wait for solution for a Lemuel Shattuck to dramatize the necessities and, more important, to emphasize the practical engineering economic answers.

HOUSING

In 1947, there were approximately 41,625,000 dwelling units in the United States. In the urban areas over 5,000,000 of these, or 22 per cent, needed major repairs or lacked a private bath and toilet. About the same ratio of inadequacy prevailed in the New England States. In 1947, in the South, over 80 per cent of all the rural farmhouses were without running water. Only 20 per cent of the farmhouses in the entire country in 1947 had both bath and toilet facilities. Sixty-seven per cent of these farmhouses lacked running water within the house. Some improvement has occurred between the period 1940 and 1947, because in this period the figure of dwelling units for the entire country provided with private bath and toilet increased from 55 to 66 per cent, while the number of houses without running water declined from 30 to 22 per cent of the total.

A glance at any of the special problems in the field of housing and of sanitation presents even a more gloomy picture. *A Medical Survey of the Bituminous Coal Industries** made in 1947 is an example of this gloomy picture, best summarized in the following words from the report thereon (page 20):

> Although the world of today is one of nuclear fission and jet propulsion, of international aviation and frequency modulation, of frozen foods and penicillin, the simple bathtub or shower is still a rare item in the houses miners and their families occupy in coal-mining camps. Of the 1,154 company-owned houses inspected, only 121 contained bathrooms in which there were either tubs or showers, or both. . . . In privately owned houses occupied by miners and their families, 31 per cent had bathrooms with tubs or showers or both.

In these same areas privies are still the most common method of disposal in both company-owned or controlled communities and in other communities.

The report makes a further pertinent comment, which might be appropriately

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* Supt. of Documents, Gov. Ptg. Office, Washington, D. C. Price, $1.75.

applied to other situations than the coal mining camp. The comment is as follows:

> The issue is not one of raising or lowering the standard of the miners to the levels of white collar workers or cotton pickers or any other vocational group. Rather, this study has been grounded on the premise that, all comparisons to one side, coal miners should share as much as possible in the dividends of good living sought by all Americans. It is granted that the deficiencies described are not unique if a similar survey were conducted among share croppers or itinerant harvesters. It is not unlikely that some conditions would be discovered so deplorable as to make those described herein seem rosy by comparison. In the very capital of the United States, approximately 100,000 persons [3] still draw their drinking water from yard hydrants and rely upon privies. Yet the lesson to be derived is not that the nation can well afford, therefore, to take time to ameliorate the condition of the miners, but that assistance should and must be extended to all citizens whose living conditions dispute the complacent assumption that man has attained the peak of progress.

MILK PRODUCTS AND FOOD

In the last 10 years almost 2,500 disease outbreaks have occurred from milk products and other foods, accounting for some 100,000 cases. The sanitary methods of producing, handling, preparing, storing, display and serving of foods offer almost an unexplored field for the professional worker in sanitation. Perhaps no small part of this activity presents a problem in public health education, although engineering ingenuity and research are required for the development of adequate facilities in food processing and handling establishments, as well as in the home.

Some 500 American communities now require the pasteurization of their milk, but there are still far too many communities, particularly the smaller ones, where pasteurized milk is unavailable.

INSECTS AND RODENTS

Even with the development of the miracle insecticides and rodenticides, such as DDT and "1080," most professional judgment is agreed that a more basic job of the elimination of man-made breeding places of insects and rodents must be done if the full effect of fly and insect control on diseases in general is to be accomplished. The insecticides and rodenticides developed in the past few years will bring about many accomplishments on a more economical basis than has hitherto been possible. The important fact remains, however, that no substitute for sound municipal housekeeping has yet been discovered, no matter how high our enthusiasms may rise for such substitutes, in the first flush of excitement at new and helpful discoveries.

On a world-wide basis, the suppression of the pestilential diseases is hardly imaginable without the existence throughout the world of satisfactory sanitation, and without the complete suppression of the important vectors of plague, yellow fever, typhus, and malaria. It is still true that, while many parts of the world are effectively protected against certain diseases such as cholera, little or nothing has been done to attack the endemic foci.

Throughout a large portion of the globe, millions of deaths and hundreds of millions of cases of malaria still occur annually. This disease alone has more impact than almost any other factor on the working capacity of populations and on the production of food. The economic consequences of this disease are immeasurably great. Insecticides now make it possible to contemplate effective malaria control in many malarious countries. The discovery of DDT-resistant strains of house flies has given rise to some alarm that some anophelines may be or may become similarly resistant. The work in Pakistan, in Sardinia, and in Cyprus will offer opportunities for evaluation of the varying procedures. The future still holds a major challenge for the profes-

sional worker in this field of sanitation.

ATMOSPHERE

Mention has already been made of the slow progress in the control of pollution of the atmosphere. Shattuck emphasized the significance of this field of activity, in the following terms (page 143): "We recommend that provision be made for obtaining observations of atmospheric phenomena, or a systematic and uniform plan at different stations in the Commonwealth." And on page 147, "It opens a vast field for examination, which is as yet almost entirely unexplored; but it promises results of great value and importance to science and to human life." It is pertinent to point out that our understanding of the effects of atmosphere upon the human population is not much better advanced than it was in Shattuck's day. The deaths in the Meuse Valley of Belgium in 1930 and in Donora, Pennsylvania, in the last 10 days are simple reminders, more dramatic than the smog of Los Angeles, that we still live in a world in which the missing physiological links between contaminated atmosphere and human reaction are many and subtle. Did these people die because of the phenomena and if so, why?—are important questions to be answered!

The industrial chemical operations which take place in a highly complex world such as ours, the number of which now exceeds 20,000, have never been completely evaluated in relation either to internal or external atmospheres. McCord has properly pointed out that we never catch up with the impact of industrial wastes to get ahead of them.

This is strikingly exemplified in the recent decision of the National Cancer Institute to create an environmental cancer section to undertake one of the first intensive surveys of man's environment with particular reference to carcinogenic circumstances, occupation, diet, climate, parasitic infections, etc. The environmentalist has much ahead of him with respect to this particular group of diseases, in which so many characteristics parallel those of the more familiar infectious diseases.

ACCIDENTS

One more area of future activity should be mentioned. It is not included merely to exhaust the list, because many additional aspects of environmental control have not been covered in this discussion. In 1947 some 101,000 deaths occurred in the United States from accidents. The 100,000 mark has been exceeded only four times before in the history of this country, 1934, 1936, 1937, and 1941. It has always been a considerable mystery as to why health departments have given little or no attention to these major causes of death. It is well to remind ourselves that here is one of the great killers of the modern age. It is therefore gratifying to record that in the 1947 report of the special commission to study and investigate certain public health matters in Massachusetts, emphasis is placed upon the death rate from accidents. Motor vehicle accidents alone caused 32,500 deaths in 1947. Official health department contribution in general to the amelioration of this particular area of mortality hitherto has been largely one of rationalizing itself out of any responsibility, an intellectual contribution hardly in consonance with the normal preambles to public health appraisal sheets.

Even though the risk of prophecy is great, one thing is certain for the future, that in the field of the control of environment, more remains to be done in the next century than has been done in the previous one. The Shattack charter, with minor adjustments in language, is an excellent charter for the next 100 years. In sanitation, great strides have been made in the last century, but the

correctives, in number, in kind and in effect have never caught up with the actualities. It still remains true, and I suspect that it will continue to remain true forever, that a sanitary environment for everyone, in Massachusetts, in the United States and in the world, in the words of Shattuck, "is attainable but is rarely attained." This work must go on and, in carrying it on, we must rely on the same three fronts of education, research and practice.

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Local Public Health Services Bill Reintroduced

The Local Public Health Services Bill was introduced into the U. S. Senate on January 17. The bill is substantially in the form reported out favorably by the House Committee on Interstate and Foreign Commerce of the 80th Congress. Known as the Local Health Units Act, S 522, it was introduced on a bipartisan basis by five Democratic and five Republican Senators as follows:

Democrats

Virgil Chapman, Kentucky
Paul Douglas, Illinois
Lister Hill, Alabama
Hubert H. Humphreys, Minnesota
Estes Kefauver, Tennessee

Republicans

Guy Cordon, Oregon
Wm. F. Knowland, California
George W. Malone, Nevada
Leverett Saltonstall, Massachusetts
H. Alexander Smith, New Jersey

This bill has been referred to the Senate Labor and Welfare Committee of which Elbert D. Thomas of Utah is chairman. Other members are:

George Aiken, Vermont
Forrest Donnell, Missouri
Paul Douglas, Illinois
Lister Hill, Alabama
Hubert H. Humphreys, Minnesota
Wayne Morse, Oregon
James Murray, Montana
Matthew Neely, West Virginia
Claude Pepper, Florida
H. Alexander Smith, New Jersey
Robert Taft, Ohio

The membership of the Subcommittee on Public Health which will pass on the bill before it goes to the full committee had not been appointed at the time of going to press.

In the House the Local Public Health Services Bill in the form originally considered by the Interstate and Foreign Commerce Committee of the 80th Congress was introduced by the same Congressmen who presented it last year, J. Percy Priest of Tennessee and James I. Dolliver of Iowa. Their bills are numbered respectively, HR 267 and HR 785. The Chairman of the House Committee on Interstate and Foreign Commerce is Robert Crosser of Ohio, with other members not yet announced.

Lemuel Shattuck—Still a Prophet

The Vitality of Vital Statistics *

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SOME hundred years ago, Lemuel Shattuck defined statistics as "the science or art of applying facts to the elucidation and demonstration of truth" (283).† He called it "the basis of social and political economy, and the only sure ground on which the truth or falsehood of theories can be brought to the test."

Shattuck was anticipating (and refuting in advance) objections which would be raised to the fifty recommendations set forth in the *Report of the Sanitary Commission*. Since so much of the *Report* is based on the analysis of vital data in Massachusetts and elsewhere, the expected objection arises very early. The hypothetical Philistine says: "I don't think much of your statistics; you can prove anything by figures." The ring of this is all too familiar to the ears of a statistician, who frequently finds himself in the position of priest of a religion which, alternately reviled by the laity, is again called on by them to pull a prolific rabbit out of a magic silk hat —or, perhaps, in this case it should appropriately be a dunce cap.

Carefully defining what he means by "statistics," Shattuck goes on to point out that they do not consist merely, or even largely, of columns of figures. He uses figures, he says, as the representatives of facts, and as such he finds them "far more useful and important than the fiction and theory, the assumption and assertion that have occupied so much of public attention."

He very clearly realizes the function of figures in statistics when he says that "combination and deduction are required to give them full effect." The entire *Report* is an excellent example of the intelligent use of numerical data for the deduction of justified conclusions, which is the essential groundwork of a science. A science develops, as a rule, through the advent of minds which can organize recorded knowledge, deduce general relationships, and test them against experience. Such minds are never plentiful: at times a constellation of them arises, to be succeeded by a long sterile period. Shattuck's was one of the earliest of such minds to appear in our science of public health which, after all, is not very old even as measured in terms of recorded history.

Logical thinking has presumably been practised since some remote grandfathers freed their front paws from the chore of walking, or of swinging through trees, and began to use them for the purpose of taking their universe apart to see what made it tick. Even so, most of what we like to call "thinking" is far from logical, and the human race is subject to periodic mass retreats from reason. A Greek Golden Age is followed by a period of medieval obscurity, and a Renaissance of liberal humanitarianism by an eclipse of totalitarian dogma. Yet the night is never com-

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† Numbers in parentheses refer to pages of the original *Report*.

pletely black, any more than the day is without shadows. The tools of intellectual progress are always at hand for him who has the ability and the will to use them, and no age is without its examples of illustrious heretics who dared stake and concentration camp to maintain "Eppur si muove!"

One of the most powerful tools of logical reasoning is mathematics, and quite regularly the organization of new knowledge and the departure from accepted beliefs is along the roads of mathematical synthesis and analysis. It should not be surprising that Shattuck's attack on his problem was couched in statistical terms — or, if you prefer, that a statistical mind of high order produced a logically outstanding statement of problems which could, at that time, be seen only indirectly; and propounded a solution so complete in its general terms that we have not yet caught up with all its implications.

For, mind you, there was no bacteriology at the time of the *Report of the Sanitary Commission.* Shattuck speaks, as did the eminent physicians of his day, of exhalations and effluvia, of bad airs and of stinks. Since air is to blame for much "zymotic" disease, he becomes curious about meteorological changes and analyzes them in some detail (143). He recommends that stations be set up to study changes in the weather (no mean task in the Boston area) and to relate such changes to the occurrence of various diseases. He points out that some gases, such as hydrogen sulfide, when present in any appreciable amount are a direct danger to health. This may be regarded as at least an embryonic approach to industrial hygiene.

With the advent of bacteriology, cause and effect of "zymotic" diseases became direct and simple; perhaps too simple. An increasing number of us are wondering today whether the role of meteorology in the epidemiologic picture has not been too much neglected; whether we might not with profit return to this recommendation of the *Report* and pursue it farther to see whether it could not yield keys to a few of the many doors still locked against us.

Most of the *Report,* being essentially statistical, deals with relationships that can be measured. It may be noted that Shattuck, influenced as he naturally was by current medical speculation, still had the statistician's obstinate reluctance to accept ideas that he could not support with numerical data. He quotes Chadwick, for instance (188), at some length on the dangers of cemeteries to the public health—but he prefaces the quotation with the statement that Massachusetts has not yet experienced these evils; at least to any great extent.

Shattuck's statistical sources were, by today's standards, fragmentary and sometimes of dubious reliability. Yet he seized on them and milked them dry of reliable conclusions, while avoiding many pitfalls into which he might easily have stumbled. Part of his argument is based on average ages at death, but he points out the fallacies underlying comparisons on this basis (106) and is careful to restrict his own conclusions to similar groups. Clergymen, he notes, over a long period of years died at an average age of 63.5; in more recent years, they have been dying, on the average, 7 years earlier (85). Physicians, similarly, have lost 9 years of life compared to earlier periods (86). But he insists, over and over, that the best measure for comparison, when available, is the specific death rate according to age and other factors (139).

The basic argument of the *Report* is simple and straightforward. Mortality conditions were better in Massachusetts in earlier years; some causes are now making them worse; if such causes have been newly introduced, they can be removed, and conditions restored to at least their previous levels.

Various demonstrable factors are associated, in some areas, with mortality rates higher than those of other areas. At least some of these factors can be eliminated and this elimination should bring the higher rates closer to the lower ones.

Again and again, it is pointed out that mortality increases with urbanization. In cities, the increase is associated with crowding and with what we should now call "socio-economic" factors. Infant mortality, in 1830 already twice as great in Boston as in two "country towns," has risen by another half in 15 years more (82). Mortality in other young age groups has kept pace; older people are about holding their own. Why have these mortalities increased? Well, for one thing, "zymotic" diseases have doubled on the scale of proportional mortality. In 1810–1820, they produced 16 per cent of all deaths (90) and, in 1840–1849, 32 per cent (92). Shattuck calls these diseases the "Index of Public Health." Certain of them have increased enormously in Boston, such as smallpox and scarlet fever. The "typhus" fevers, including typhoid, have not increased and, in fact, are relatively more of a problem in the country. Boston has, on the other hand, a much larger share of the dysenteric diseases of childhood (100). Detailed tables are devoted to the analysis of deaths from tuberculosis (94), which not only causes one-seventh to a quarter of all deaths but takes its victims out of the best and most productive part of the life span. It is emphasized that there is no hope of cure, once the disease is established (98)—it must be controlled by prevention.

Why is there this increase in what we should now, in general, call the infectious diseases? For one thing, it is pointed out that known preventive measures have been neglected: the smallpox vaccination laws have been emasculated (180). For another, people are being herded into smaller and smaller circles. To show the effects of this, English data are quoted (43) showing the relationship of crowding to mortality rates in London. Socio-economic factors are brought in: in Liverpool, even the gentry have a death rate equal to London's worst, or 29/1,000; among workers, it is over twice as high (44) to reach the horrifying figure of 67 persons dying per year in each thousand of the population.

From the Census of Boston, Shattuck takes survivorship curves (102) for various population groups. According to these, overall life expectancy in Newton is similar to that in England, or slightly less. Boston's situation is very much worse while Boston Catholics are very definitely in worse case still. Boston Catholics in those days were, of course, very largely the recently arrived and still economically desperate Irish immigrants. Of them, the *Report* has a great deal to say (200): as the population of Boston becomes more largely foreign born, increased crowding is only one of the bad results. The new citizens contribute more than their share of delinquency and disease, while benefiting out of proportion from school taxes and hospital beds.

In the fifty recommendations for the improvement of health conditions in Massachusetts, it is not surprising to find the need for the provision of vital data eloquently stressed and a system of collection expounded in considerable detail. The twelfth recommendation (126) asks that census information be so gathered and made available as to be of real use to the hygienist. Shattuck says: "An exact knowledge . . . of the living inhabitants . . . is the first . . . element, for estimating their sanitary condition." He then enumerates the facts that should be collected: a list not greatly different from one we might make today (128). He points out one essential: this informa-

tion must be known for each individual, and not pooled in groups (130). He also recommends a more modern system of age grouping than that hitherto employed.

Shattuck finds, as do many of us, that ten years is a long time between censuses. The State Constitution at that time provided for state censuses taken during the same years as the federal ones (133). He points out the absurdity of this and recommends that state censuses be spaced evenly between federal ones: a recommendation since then followed. The blame for the only moderate success of this measure can hardly be laid at Shattuck's door.

In the fourteenth recommendation (135), the need for a comprehensive system of recording vital data is set forth at length. It is pointed out (139) that age-specific death rates are the only fair bases of comparison and that these cannot be found without knowledge of the ages of the population and the ages at which they die. A table is presented (140) illustrating the effect of different population compositions on the crude death rate, and a warning is sounded against the not entirely extinct habit of comparing the salubrity of occupations on the basis of the gross mortalities of the groups involved, without taking into account what differences there may be in the ages of those who work at different tasks. In order to study the natural history of populations, says the *Report,* complete data on births are as necessary as those on deaths, and they should be collected and registered just as carefully.

Shattuck ends this recommendation by a brief statement of twelve principles (141), here even further abridged:

1. Mortality varies uniformly with age.
2. Maintenance of the population is based primarily on the number of married couples in the fertile ages.
3. Excessive births are a *cause,* not a *consequence,* of high mortality rates.
4. Mean age at death and crude death rate are fallacious measures of health conditions.
5. Comparing the dangers of different occupations on the basis of mean age at death or of total mortality of the workers is fallacious.
6. Previous rates cannot be compared with present ones on these bases.
7. Age-specific death rates form the only legitimate basis for comparisons.
8. Immigration and emigration usually distort the age distribution of a population, and so its crude mortality rate.
9. Morbidity and mortality should be studied separately by age, sex, season, occupation and other factors.
10. An accurate census and accurate vital statistics are basic to knowledge of a population, and a sanitary survey is useless without them.
11. The English system of age grouping should be adopted instead of the present, irregular one.
12. Statistics should be under the supervision of the Board of Health to secure uniformity over the entire State.

We could hardly ask for a more comprehensive statement of why statistics are useful, and what they must include in order not to be misleading. The sixteenth recommendation (149) adds a suggested list of causes of death to supersede the medical classification currently in use, which is considered unsatisfactory. Shattuck feels that the causes of disease deserve more attention than does the disease itself (150), and endeavors to construct a classification according to etiological principles. Although his system of causative agents is based on notions a century old, his principle has a very modern sound: particularly in view of our continued inability to get away from a classification based partly on etiology and partly on regional pathology.

Throughout the *Report,* one is struck by the rarity of occasions on which Shattuck is led very far astray by concepts of disease current in his time, some of which look ludicrous enough from the proud point of view of our present rung on the ladder of epidemiologic knowledge. He is a hard-headed business man, and he insists on facts.

As a business man, also, he abhors

waste in the human population as he would in his publishing house. Unnecessary deaths are a criminal waste. They not only cause misery to the individual concerned and to his family, but they throw helpless widows and orphans on the community and so deplete its resources. Unnecessary illness is much the same. It causes suffering; it also reduces productivity and leads to additional expenses. Lacking adequate morbidity statistics for Massachusetts, Shattuck quotes liberally from English sources (174) as to days lost per year due to sickness. He proposes, in the twenty-fifth recommendation (171), that morbidity surveys be carried on to determine the exact load of disease in Massachusetts. In the meanwhile, he is quite sure that conditions here are worse than in England. His reason is simple and convincing: various sickness insurance companies have been formed in Boston and have used English experience as a basis for their premium rates. They have uniformly gone into bankruptcy (177)! He estimated that, in 1849, at any time, over 5 per cent of Boston's population was sick.

In order to do justice to Shattuck's grasp of statistical method—to show how firmly his conclusions are based on sound quantitative reasoning—almost the entire book would have to be quoted. Did he think logically because he was a trained statistician? Or did he become interested in statistics because he had a logical and orderly mind? The choice of answer does not seem to matter greatly.

What does matter a great deal is that by use of Laplace's "good sense reduced to arithmetic" a man, although not a physician, was able to see the essentials of a complicated question and to postulate a workable answer. Perhaps we should say "*because* he was not a physician," since he was to some extent able to stand outside the body of accepted medical ideas of his time and to view them with a certain disinterest and detachment. The lenses he used to help him see more clearly were statistical in their structure.

Medicine and public health, by their very nature, tend to accept and to carry on ideas based on evidence that is anything but solid. The problems are so great; the needs so immediate; the possibility of experiment so difficult; that we easily succumb to the comfortable feeling that whatever we are doing must be of some benefit to a suffering humanity, and should not be questioned. Once a concept is deeply imbedded in our thinking it requires unusual ability and pertinacity to dig through the surrounding layers of custom and association, to bring the concept to the light of day and to subject it to a new and thorough scrutiny.

True enough, vital statistics alone does not enable the questioner to see clearly, to judge soundly, and to act sensibly. But it is an essential tool for the type of mind which Shattuck had; it will be just as essential to the next who may come to tear down old walls and to build new and better on the solid foundations. That is the vitality of Vital Statistics!

Order blank for Report of the Sanitary Commission of Massachusetts 1850 by Lemuel Shattuck appears on page XXXVI.

Lemuel Shattuck—Still a Prophet

The Message of Lemuel Shattuck for 1948 *

C.-E. A. WINSLOW, Dr.P.H., F.A.P.H.A.

Editor, American Journal of Public Health

THE meeting we are holding this afternoon is a striking example of the miracle of the written word. The life of the physical body is brief; but the thoughts of men have acquired immortality through the magic of the pen and of the printing press. We celebrate today the centennary of a printed book through which the ideas of a great pioneer still live and move and have their being.

There are many great books in our field of human thought. Johann Peter Frank, Edwin Chadwick, John Simon, W. T. Sedgwick, Charles V. Chapin produced works which were of compelling influence in their day and are still worthy of our attentive study. But, in my judgment, the *Report of the Sanitary Commission of Massachusetts* is the most outstanding single "Book of Pfophecy" in the history of public health.

My own copy of this work was sent by Lemuel Shattuck to the Mayor of Providence, under date of March 4, 1851, with the following letter from the author which is pasted inside the front cover.

"I take the liberty to forward for your acceptance a copy of the Report of the Sanitary Commission which I have prepared and just published. You will please place it in the hands of the Board of Health or other department of your municipal authorities where it will be most useful. Although it contains many things that are evidently of local application, yet other matters will be found of a general bearing which may be useful in any place. If it shall be means of calling public attention to the causes of disease, and of leading to the adoption of wise measures for their removal it will do much good; and this is my only motive in its production."

Many years later, when there was house-cleaning in the Providence City Hall, this volume was thrown out on the town dump. A discerning citizen observed it there, rescued it, and took it to Charles V. Chapin, the distinguished health officer of the city; and in 1930, Dr. Chapin sent it to me with his "affectionate regards." So it is a precious volume, bearing the signatures of two of the most outstanding leaders of American public health.

Most of the 2,000 copies of this report authorized by the Massachusetts Legislature of 1850 have not been so fortunately preserved; and the original printing is a collector's prize. Perhaps some of you may still find a copy on some obscure and dusty book-shelf. Meanwhile, it must be a great personal gratification to all of us that the Massachusetts Public Health Association and the American Public Health Association have coöperated to produce a complete facsimile reproduction of the original report (omitting only its appendices). This should be the first volume with which the young recruit in public health begins the formation of his personal library.

It is a little difficult for us to grasp the significance of the *Report of the Sanitary Commission of Massachusetts*

* Presented before the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

without an effort to realize the America of a century ago to which it was addressed. In July, 1850, Zachary Taylor died and Millard Fillmore took the oath of office as head of a nation of 23 million people. For transportation, the bicycle was available, and Shattuck notes with admiration the wonders of the Morse telegraph system. Only in the 50's, was the New York Central Railroad completed from New York to Albany, and the laying of the Atlantic cable begun. Airplanes, automobiles, electric trolleys, incandescent lamps, turbines, submarines, telephones were all in the womb of the future. The very land on which many of the hotels we occupy now stand was a waste of water and mud, the "Back Bay," not yet filled in for human occupancy.

There had been "boards of health" in Baltimore, New York, Philadelphia, and other large seaboard cities established under the threat of yellow fever in the 1790's; and a law passed in 1849, during a cholera epidemic, authorized towns in Massachusetts to establish boards of health; but these "Boards of Health" were still skeleton organizations dealing only with acute epidemic emergencies and particularly obnoxious local nuisances. The Board of Health of the City of Boston was established only in 1872, after the great fire of that year. There were, of course, no state boards of health, Massachusetts leading the way in 1869. As Dr. Henry P. Bowditch said, Shattuck's report "fell stillborn from the hands of the State printer." G. C. Whipple tells us that "eight years later, Governor Banks, who had been a member of the Sanitary Commission, did not even remember that he had signed the report."

So, in a world in which only Edwin Chadwick in England had any dim conception of an organized, continuing program of positive health promotion, Lemuel Shattuck formulated his vision of the future. I like to think of this ex-school-teacher, publisher, book seller, member of the State Legislature, and good citizen—with his strong and eager face (rising over a high collar and black bow-tie in his portrait), sitting at his desk and beginning to write (probably with a quill pen and on foolscap paper) as follows:

"The Commissioners, appointed on the third day of July last, 'to prepare and report to the next General Court, a plan for a Sanitary Survey of the State, embracing a statement of such facts and suggestions as they may think proper to illustrate the subject,' have considered the matters referred to them, as far as the limited time at their command, and other circumstances, since their appointment would permit, and submit their *Report*."

Little did he think that a century later, an American Public Health Association, of eleven thousand members, would hold a special meeting to attest the lasting significance of what he wrote, a bold pioneer gazing out from a mountain top through the mists to a future promised land.

He states the problem in terms which are as valid in 1948 as in 1849.

"We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable;—that the average length of human life may be very much extended, and its physical power greatly augmented; that in every year, within this Commonwealth, thousands of lives are lost which might have been saved; that tens of thousands of cases of sickness occur, which might have been prevented;—that a vast amount of unnecessarily impaired health, and physical debility exists among those not actually confined by sickness;—that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities pecuniary, social, physical, mental, and moral, which might be avoided;—that means exist, within reach, for their mitigation or removal;—and that measures for prevention will effect infinitely more than remedies for the cure of disease."

He perceived that "the condition of perfect *public health* requires such laws and regulations as will secure to man associated in society, the same sanitary

enjoyments that he would have as an isolated individual; and as will protect him from injury from any influences connected with his locality, his dwelling-house, his occupation, or those of his associates or neighbors, or from any other social causes." Still more remarkable is the fact that Shattuck realized the importance of the educational, as well as the legal approach. "But whom does this great matter of public health concern?" he asks. "By whom is this subject to be surveyed, analyzed, and practically applied? And who are to be benefited by this application? Some will answer, the physician, certainly. True, but only in a degree; not mainly. It will assist him to learn the causes of disease; but it will be infinitely more valuable to the whole people, to teach them how to prevent disease, and to live without being sick."

The *Report* begins with an admirable historical summary, the preparation of which must have taken weeks and weeks of Shattuck's time and more than exhausted the $50 allotted to the Commission for the purchase of books on the subject. It traces the progress of the "Sanitary Movement" abroad — in France, Germany, and England, and of the beginnings of the movement in this country. It includes an invaluable review of the outstanding epidemics which had occurred in Massachusetts, from a mysterious pestilence which had almost exterminated certain local Indian tribes in 1618; and closes with statistical analyses of mortality by place, season, occupation, and cause which are still of background significance to the student of vital statistics.

The major section of the *Report* is devoted to specific practical recommendations, fifty in number; and it is here that Shattuck's combination of long-range vision and practical common sense is most astonishingly manifest. Of the fifty recommendations—all at the time new and untried principles or policies—careful analysis shows that no less than thirty-six are now universally accepted practice—not only in Massachusetts but throughout the Union. They provide, first, for a sound basis of public health administration, including an overall state health law; a State Board of Health (whose membership should include two physicians, a counsellor at law, a chemist or natural philosopher, a civil engineer, and two other persons) with a paid secretary; a local board of health in each town with a secretary, required to make an annual written report; and for special sanitary surveys of particular cities, towns, and localities (a foreshadowing of the work of our Committee on Administrative Practice). Recommendations are specific and detailed with regard to vital statistics, including a decennial state census, uniform nomenclature for causes of death and of disease and collection of data with regard to locality, age, race, sex, occupation, housing, and economic status. In the field of environmental sanitation, Shattuck emphasizes the control of nuisances endangering human life or health (including specifically the smoke nuisance); the supervision of the construction of new dwellings, factories, or other buildings, and the mitigation of sanitary evils arising from overcrowded lodging-houses and cellar-dwellings; the sanitation of school houses; and exact observation of "the effect of mill-ponds and other collections or streams of water, and of their rise and fall, upon the health of the neighboring inhabitants"; a sound basis for the study of the epidemiology of malaria. Specific recommendations provide for control of the sale and use of unwholesome, spurious or adulterated articles designed for food, drink, or medicine, with special reference to patent medicines and other nostrums and secret remedies.

In the area of communicable disease

control, every town should be required to provide periodical vaccination against smallpox; and three recommendations deal with maritime quarantine and the protection of the health of passengers and merchant seamen, a program which was soon to be developed by the U. S. Marine Hospital Service. Shattuck's emphasis on tuberculosis is of special interest. He says:

> "The occasional visit of the cholera, or some other epidemic disease, creates alarm, and precautionary measures are adopted for prevention. But where is the alarm and precaution against a more inexorable disease, which, in this state, in every day in every year deprives more than seven human beings of their lives? Over this disease curative skill has little or no power. It generally goes on from its commencement to its termination, uncontrolled and uncontrollable by any remedies as yet discovered. Cholera, typhus, scarlatina, though terrible in themselves, when compared with this disease, are far less so in fatality. *But it may be avoided,* before it attacks. Its onset and its development may be prevented. And if it is ever to be ameliorated or eradicated, it can only be done by prevention, and not by cure."

The precise answers were not then at hand; but Shattuck faced the problem and urged "that the causes of consumption, and the circumstances under which it occur, be made the subject of particular observation and investigation." In other recommendations, the *Report* lays the foundation for programs of child health by the training of "parents, and others to whom the care of those in infancy and childhood are intrusted," to "understand and discharge their duties so that a good foundation may be laid for vigorous manhood and old age"; and by measures taken "to ascertain the amount of sickness suffered among the scholars who attend the public schools, and other seminaries of learning." Finally, two of the most far-sighted recommendations in the *Report* suggest: "that institutions be formed to educate and qualify females to be nurses of the sick"; and "that persons be specially educated in sanitary science, as preventive advisers as well as curative advisers." In considering the first of these suggestions, we must recall that in 1848 Florence Nightingale had not yet established her pioneer training school in England; and that this astounding Boston book seller based his recommendations on his knowledge of Pastor Fliedner's school at Kaiserswerth, from which the Lady of the Lamp drew her own inspiration. With respect to education in preventive medicine, Shattuck foresaw the need for something like our ten accredited Schools of Public Health, and for the attempt—not even yet too successful—to introduce the concept of prevention into medical education.

Against these 36 recommendations whose soundness has been demonstrated by their full incorporation into the routine practices of public health, I find only 4 which experience has shown to be unimportant or, in some degree, unsound. One of these relates to a minor detail with regard to the format of printed annual reports. Another calls for control of inquests by the Board of Health; and still another for the management of cemeteries by the Board of Health. The fourth and last dubious recommendation of the *Report* urges that "whenever practicable, the refuse and sewage of cities and towns be collected, and applied to the purposes of agriculture." This was wholly in accord with the best thought of the time in England; but experience has shown that such a method of disposal is not generally "practicable" on economic grounds.

There remain ten recommendations of the *Report* which are of particular interest to us. They are as sound as the 36 proposals which have been generally accepted; but their importance has not yet been fully realized. They constitute direct and immediate challenges to the public health profession of 1948.

Three of these recommendations (XVII, XXI and XXXVIII) relate to the vital problems of housing and planning. We have accepted the necessity for health department control of the most obvious and glaring defects in housing; but this is merely curative and not preventive sanitation. Shattuck saw farther into the future. He demanded that "in laying out new towns and villages, and in extending those already laid out, ample provision be made for a supply, in purity and abundance, of light, air and water"; "that open spaces be reserved in cities and villages for public walks; that wide streets be laid out; and that both be ornamented with trees." He urged that "tenements for the better accommodation of the poor, be erected in cities and villages." It is true that he looked chiefly to private philanthropy to attain the latter end; but we know today that only public assistance, on the federal level, can possibly meet our national needs. We have city planning boards in our cities; but—with shining exceptions, such as Philadelphia and Los Angeles—they are not receiving full and continuous public support. We began, with brilliant success, under the National Housing Act of 1937, a real program of slum clearance and housing for the lower income groups; but the House of Representatives, through reactionary committees, killed public housing bills in both the 79th and the 80th Congress. Except for temporary war housing, not a single dwelling for low income families has been built for nearly a decade; and with increasing families and inflation, slum conditions become more deplorable every year.

A second challenge of the 1850 *Report* is found in its suggestion (XXX) that local boards of health should make "careful observation of the sanitary evils of intemperance, and the local and personal circumstances under which they occur." We have only begun to realize that alcoholism is not primarily a moral or a social problem but a medical problem; and, in Connecticut, and a few other areas, it is being attacked along that line.

Another of Shattuck's recommendations (XXXII) faces the challenge of mental and emotional disease, probably the greatest single objective of the public health program of the future. His concrete suggestion is a limited and perhaps, in its actual form, an unsound one—that "the authority now vested in justices of the peace, relating to insane and idiotic persons, not arrested or indicted for crime, be transferred to the local Boards of Health." Yet his fundamental assumption that the person of unsound mind presents a health problem rather than a legal problem is wholly valid. All of our dealings with such persons must be guided by psychiatric expert knowledge and not, as is still too often true, by archaic and barbarous commitment laws. In further reform of these laws and in providing preventive services which will avoid the necessity for resorting to legal procedures at all, the health officer faces a major opportunity.

Two of Shattuck's recommendations embody minor—but significant—suggestions as to the extension of our knowledge of disease prevalence by more careful and detailed records to be kept by private physicians (XLVI) and by systematic records to be kept in each family "of the physical and sanitary condition of its members" (XLVIII).

Finally, three recommendations open up wide vistas in the area of public health education. They suggest that "a sanitary association be formed in every city and town in the state, for the purpose of collecting and diffusing information relating to public and personal health" (XXXVII); that "clergymen of all religious denominations make public health the subject of one or more discourses annually, before their congre-

gations" (XLVII); and that "individuals make frequent sanitary examinations of themselves, and endeavor to promote personal health, and prevent personal disease" (L). The establishment of "sanitary associations" in every city and town is precisely the object of the National Health Council, whose recent reorganization we hail with such keen satisfaction. The clergy could certainly be enlisted more generally in our cause. The "sanitary examination" which Shattuck proposed was not "an annual health examination."; but the much more important continuing study of problems of personal hygiene which is the chief objective of health education.

In general, it will be seen that the 1850 *Report* laid a sound basis for the development of health administration, vital statistics, sanitation, and control of foods and drugs. It opened the way for maternal and child health, school health, and the study of tuberculosis. It—curiously enough—ignored domestic (as opposed to maritime) isolation and quarantine, so far as major recommendations were concerned. It could, naturally, have no vision of the future developments of bacteriology, or immunology (smallpox vaccination being the only specific procedure available). The causative agents of venereal diseases were unknown and effective drugs for their treatment not available. Public health nursing was not to come for a quarter of a century; and medical care was not recognized as a serious problem, although figures are quoted to indicate that the annual charges of physicians of the state averaged $800, with average collections of $600. On the whole, however, it is quite astounding that a report, written when public health practice was in its infancy and public health science yet unborn should, out of 50 recommendations, include 36 which have been universally accepted and 10 more which are now in process of attainment. The general framework of the public health program of 1948 was embodied in the *Report* of 1850.

Time does not permit analysis of the later sections of the *Report* which deal with "Reasons for Approving the Plan Recommended," "Objections Answered," and a "Closing Appeal," to physicians, clergymen, educated men, the wealthy and philanthropic, the people as a whole, the periodical press, the cities and towns and the state, to support the proposed program. Shattuck uses the now familiar—but still highly fruitful—device of comparing the cost of sickness with the cost of health. He estimates the burden of preventable disease in Massachusetts at $7,512,000 a year; and he asks for the very modest sum of $3,000 a year to support his proposed State Board of Health! Many of the anticipated objections to his plan have a familiar ring, today: "It may be said,—'The measure is not applicable to this State; it may be well enough in some other places and countries, but we do not suffer evils which require such remedies for their removal; no people are more healthy than we; we are well enough as we are.'" This is precisely the argument advanced to avoid the issue of health insurance for the groups of modest income in 1948. "It may be said,—'This measure will interfere with private rights. If I own an estate haven't I the right to do with it as I please? to build upon it any kind of house, or to occupy it in any way, without the public interference?'" Here is the basis of the current opposition to sound housing legislation. "It may be said,—'We acknowledge that all you say is reasonable and cannot well be gainsayed; but we are a business-like, a money-making, and money-loving people. We are too much occupied to consider these matters. So many other things take up our attention that we haven't time to examine, much less to carry out your measure; and people are

not up to it as yet.'" Is this not precisely and exactly the attitude of the 80th Congress toward the vital problem of slum clearance and homes for the families of low income in 1948?

This is truly an astounding document. Its final appeal closes with a glowing tribute to the great Commonwealth under whose auspices the *Report* was produced. Shattuck points out the primacy of the leadership of Massachusetts in free public education, in registration of births and deaths, in provision of public facilities for the blind, and the deaf and dumb, in demonstration of the value of smallpox vaccination and of anesthesia. "God save the Commonwealth of Massachusetts" —he quotes—"'There she stands'; a bright morning star in the system of the Union." The publication of the *Report* in 1850 was one of the most effulgent rays ever emitted by that star.

The true significance of this *Report* is not its specific content, although much even of that is still pertinent to the present day. Its vital message for 1948 is the spirit of its approach—for the spirit of man is not something ephemeral. It is the determination of Shattuck to further the cause of all of the people, his fiery enthusiasm for that cause, his vision of new challenges and his unwavering faith in ultimate victory —these are the essentials—the living forces of the document. As you read it, you will gain new conviction of the true values of the cause which this convention of the American Public Health Association represents. Our calling is not merely to a useful and respectable profession—but to a crusade. You may remember the old tale of the three workmen, who were asked what they were doing. "I am earning my living," said the first. "I am dressing stone," said the second. "I am building a cathedral" said the third. Shattuck reminds us that we are building a cathedral.

Nor is our task a static routine but an ever-advancing and ever-widening adventure in the cause of man. We can, with great advantage, use standard methods for routine procedures; but our program as a whole must never become standardized. We must open our vision and call upon the resources of our courage to attack those problems which Shattuck foresaw, such as housing, mental hygiene, alcoholism, and health education; and those he did not vision, such as geriatrics and rehabilitation and medical care. We must not be disheartened if progress is slow. The modest state health organization which Shattuck urged for Massachusetts was not attained till nineteen years after the *Report* appeared and ten years after his own death; but it was, at last, established along exactly the lines which he laid down.

We have, today, far stronger arguments than Shattuck had to back our appeals. During the thirty years between 1915 and 1945, the United States took part in the two greatest wars of history. In those wars, between half a million and a million lives of our citizens were lost in battle. During the same thirty years, the reduction in our civilian death rate saved over six million lives.* Even World Wars are trifling and unimportant incidents, by comparison with the triumphs of public health—perhaps the most remarkable social phenomenon in the history of mankind.

This is the great cause which Shattuck served in 1850. It is the cause which you and I serve today. If we pursue our vocation with Shattuck's zeal and courage and vision and faith, the second hundred years of public health may be even harder than the first; but they will certainly be even more glorious.

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* Data courteously provided by I. M. Moriyama of the National Office of Vital Statistics.

The Montefiore Hospital Home Care Program*

MARTIN CHERKASKY, M.D.

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ENUMERATING services which the Montefiore Hospital Home Care Program provides for its patients, and the gratifying results which we have achieved, would be telling only part of the story. The basis of the program, which carries a step further the philosophy which Dr. Bluestone, our Director at Montefiore Hospital, has been expounding for some three decades, may be of even greater significance. When I was in medical school, not so long ago, we were taught that it was important to think of a patient as a whole, and not just to examine a limb or an eye. We have now come to a point in the practice of medicine where we must broaden that point of view. When we think about a patient, we should think about him not only as an organic and spiritual whole, but also as a whole in society. It is no more fair or useful to separate a man from his environment than it is to divide him into separate and independent parts.

Our hospitals, despite their stress on scientific medicine which includes diagnostic machines, laboratory examinations, therapeutic procedures, and all of the other wonderful accomplishments which have raised the level of medical care, have held back from an understanding of sick human beings as social human beings. When a patient presents himself to a hospital with certain symptoms these days, he comes in as a stranger, his immediate illness is diagnosed, and he is relieved of his condition. Unfortunately, however, he too often returns to the same situation which may have given rise to his illness. To understand what caused this patient to become sick, it is necessary to know what sort of family he has, where he lives, what kind of clothes he wears, what food he eats, what kind of employment he has, and how he reacts to these factors. These and similar facts of life make up man as a social being, and may be more provocative in the origin of his disease than the germ which has been isolated from his sputum in the bacteriology laboratory. The hospital must seek a knowledge of these factors as eagerly as it seeks knowledge in the field of scientific medicine.

This introduction is, I believe, vital to an understanding of "Home Care." Our hospital, in extending its services into the home on an extramural basis, has begun to learn many things about the patient which can only be learned when he is in the bosom of his family. To the doctors on the program it has brought a new realization of the importance of social factors in disease. This is true of any disease. It is particularly true of long-term disease where the stress of illness brings about many changes in the relationship of the patient to his family, both emotionally and economically. Montefiore Hospital in New York has not only made its scientific machinery available to pa-

* Presented before a Joint Session of the Public Health Nursing and Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

tients who live miles from its walls, it has also begun to learn new reasons why a patient becomes sick and why his illness is prolonged. This may indeed prove to be the most important contribution of the Home Care Program.

For the years 1947–1948, our Home Care Program has received $80,000 from the New York Cancer Committee, and $14,000 from the Greater New York Fund on an extra budgetary basis.

To illustrate the thinking which goes into the selection of a home care patient and what is done for him, it might be well to have you follow a typical case.

John J. was admitted to the hospital with some undetermined abdominal disease, and after thorough investigation by the clinicians and by the laboratories of the hospital, it was found that he had a cancer of the colon. He was subjected to major surgery, at which time it was found that the disease had progressed so far that the entire cancer could not be removed and he was left with a colostomy. Here is a patient who will ultimately die of his disease, but he may have six months, a year, two years or more to live. He requires nursing care, colostomy irrigations, watchful attention for complications, medication, and someone to help him with his food. He may be semi-ambulatory or bedridden. In any case, he is a sick man. But he may no longer require the special facilities of the hospital. Indeed, even if there were plenty of room for him in the hospital, he might do much better in some other environment.

The Department of Home Care was notified about this patient, and our doctor saw him for the purpose of determining whether we could provide him with a level of medical care at home which would be in conformity with our best hospital standards. In addition to being medically eligible, the patient was investigated and determined to be socially eligible. Every patient who is admitted to Montefiore Hospital has a social service "work up." When he is evaluated for Home Care, the social service worker reviews the patient's record, interviews him, interviews members of his family, and investigates the home. Since no patient is returned to his home unless this is in his best interests, it is obviously important that the family situation, the physical facilities of the home, and the patient's relationship with other members of his family should be such as to encourage the return to his home.

Many of us think of families and just naturally assume (at least when we are younger) that all parents love their children and that all children love their parents. Most of us live long enough to find out that this is not necessarily so. When return of a patient to his home is contemplated, it is important to know what bonds exist between him and his family—Are they still strong, after the disrupting effects of a long illness? These questions must be answered before it can be decided that it is best for a patient to return to his home. Some families seem not to want the patient back, but closer investigation reveals that the reason is not lack of love, but fear—fear of illness, fear of impending disaster, fear of inability to do what is required. If the fundamental attitudes are sound, all of these fears can be overcome by careful handling and good service. Some of the families who were doubtful proved to be among the best in our experience.

When it has been decided that a patient is medically and socially eligible, the patient goes on Home Care and receives the following services:

1. Medical service, around the clock, seven days a week. Specialists are available for the patient in his home, such as orthopedists, ophthalmologists, and surgeons. Many medical procedures such as abdominal taps and blood transfusions can readily be done in the home.

2. Social Service—The social worker who cared for the patient on the ward follows him into the home to help him and his family with any problems that may arise, and interprets the program to the family.

3. Nursing—The Visiting Nurse Service of New York, by contracts with us, visits each patient at least once, even in those cases where we do not foresee any need for Visiting Nurse Service, since their experience in the home will give us a good evaluation of the patient and of the patient's need for nursing. In addition, the nurses have two other important functions. They provide nursing and they teach. The teaching is, in some respects, the most important part of their job. They often teach a member of the family to become an expert nurse in the care of a particular patient.

4. Housekeeping service—We provide housekeeping service 5 to 10 hours per week. We find that this is very helpful since many of the patients who would otherwise have to remain in the hospital can well be taken care of at home if there is someone to help with the heavy housework. We have discovered that a woman is more than just a housekeeper in the home—that the mother, when she returns to the home, even though she no longer is able to do the dishes and wash the floors, can still be the rallying point for the entire family.

5. Transportation—Transportation to and from the hospital is provided, and there is a free interchange of patients between the hospital and the home. Dr. Bluestone pointed out [1] that Home Care is, in essence, an extension of the hospital into the home. There are none of the facilities of the hospital to which we cannot bring our patients by ambulance. The inconvenience to the patient is little greater than moving him from the 4th floor of the hospital to one of its laboratories.

6. Medication—We supply the patient with all medications, with hospital beds, wheelchairs, special mattresses, braces—anything that contributes to the welfare of the patient and which can be transported.

7. Occupational Therapy—We have a full-time occupational therapist who visits the patient in his home. This serves several purposes. First, it is a morale builder and certain corrective procedures can be taught to the patient. Second, for some patients it may in a small way alleviate the ever present financial difficulties.

8. Physical therapy — Our physical therapist also enters the home to treat the patient.

What are the results of our program? Let us consider the financial benefits first even though they may not be the most important. In the first twenty months of our program, we have provided something over 23,000 days of patient care. The average cost per patient day was less than $3 per day which compares quite favorably with the present cost of hospital care of $12 to $15 per day. It is, however, not of importance to have a product which is only cheaper. It must be as good or better. Home Care for patients who are suitable is not only "as good as" hospital care—it is infinitely better. If there were many empty hospital beds, a patient who is suitable for Home Care would still do much better in his home than he could possibly do in a hospital. In a hospital, a patient is one of many. He has to give up many of his own little private privileges and desires for the benefit of the group as a whole. In Home Care, we have provided the best of scientific medicine and the best in environment. He is an individual in his own bed with his own type of bedclothes, and he can have the window up or down as he sees fit. He can have his breakfast when he wants it and not when the dictates of hospital discipline compel. A patient on the ward in a hospital may be looked

at every day by a doctor, but he is not always "seen." When a doctor visits a patient in his home two, three, or four times a week, he is the sole recipient of the doctor's attention and care. A doctor on the ward may find greater interest in some patient three beds down the ward who is clinically more exciting or more interesting. Where the special facilities of the hospital are no longer needed, the rigidity and chilliness of a hospital can be profitably exchanged for the flexibility and warmth of the home.

Let me cite a case which illustrates the individualization of medical care and the well organized team which can be brought to bear on the patient in the home:

Jean J. had a growth involving her spine. An operation was performed and a large bony segment was removed. This happened about six years ago. During the intervening time Jean spent more than one year in a body cast and, because of the defect in her spine, was told she could never walk. She was seen in some of the best hospitals, but here was a patient permanently consigned to bed, a hard fate for a 29 year old girl to endure.

Eight months ago Jean came on the Home Care Program. She lived in a third story apartment with her widowed mother. The doctor seeing this young woman in her home, developed a much clearer insight into her hopes and desires than could a doctor on the ward where she was just one of a dozen patients bedridden for life. An orthopedist was called in, and after reviewing all the x-ray films, a special back brace was made for the patient. One day the visiting nurse met the doctor at Jean's home and helped her out of bed with under-the-arm crutches, and so began a long period with the doctor visiting three times a week, the visiting nurse three or four times a week, the physical therapist four times a week, massage, encouragement, new Swiss crutches, leg brace, and one day Jean got out of bed and walked to the bathroom for the first time in over five years. By using telephone books as an improvised stair, she was taught to walk up and down stairs. More than six months after coming on Home Care, Jean walked down two flights of stairs, got into a cab, came to our hospital and was presented to our clinical conference. Many of the doctors were surprised to see this "bedridden" patient come in under her own steam. Jean now is progressing toward walking without any supports.

We have salvaged a human being, and this by individualizing her care and by coördinating all the facilities of the hospital and community in their joint fight for health and against disease.

REFERENCE

1. See Home Care, An Extramural Hospital Function, *Survey Midmonthly*, Apr., 1948.

Home Nursing Service in the Health Insurance Plan of Greater New York*

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VISITING nurse service at home is included in the list of benefits provided by the Health Insurance Plan of Greater New York. A review of the first year's experience tells a limited, but significant story.

As is now widely known, HIP (Health Insurance Plan of Greater New York) is a non-profit corporation, licensed by the State of New York, operating under New York State Insurance Department regulations. It provides specified benefits for employed persons in New York City who earn less than $5,000 annually, and to their dependents. Pamphlets describing the plan,† state "no limitations on age or amount of service." The medical care includes general medical service at the home, at the doctor's office, at the hospital; specialist, surgical, maternity, and laboratory services; health examinations and preventive services.

The cost, which is shared by the employee and employer, the latter paying at least half of the premium, is $0.56 a week for a single individual, $1.12 a week for a person with one dependent, and $1.68 a week for a person with two or more dependents. Hospital insurance is not included in these costs, but each subscriber must be enrolled in a hospitalization plan as a prerequisite for HIP enrollment.

Group practice and a capitation plan is offered to qualified physicians. A group includes general physicians and specialists, aided by technical personnel working together as a team from an administrative center. Each medical group must meet professional standards set by the 15 practising physicians constituting the HIP Medical Control Board. A capitation of $19.20 per person per year is paid by HIP to each medical group. Considerable thought and study preceded this decision. Apprehension on the part of some persons about the physicians being willing to pay for nursing service and concern by others that if they did not pay for it, the nurses might be asked to make too frequent calls to assist physicians, influenced HIP to put aside 40 cents (80 per cent) per person to cover the cost of the estimated visiting nurse service and to ask each medical group to bear visiting nurse service costs up to 10 cents (20 per cent) per insured person per year. Experience, in the first year, shows that the limited amount of nursing service used was used wisely. No physician asked the nurse to carry out services which he might be expected to give. However, some of the medical groups (not all) voiced disapproval in having any part of their capitation

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† Can be secured from Office of Health Insurance Plan of Greater New York, 425 Avenue of the Americas, New York 11, N. Y.

money used for nursing service, and wished unused funds to revert to the medical group.

Each medical group is an independent administrative unit which may employ non-medical personnel without HIP approval, and visiting nurse service is one of the benefits which the group agrees to provide. The Health Insurance Plan Nursing Advisory Committee, composed of representatives from both official and private agencies including hospitals, public health, and schools of nursing, recommended that medical groups should not try to set up their own visiting nurse services, and when HIP went into operation in March, 1947, it signed contracts with the three visiting nurse organizations covering the five boroughs of New York City.

Before citing details of these contracts, it is appropriate to mention that, in HIP policies, emphasis is given to the insured persons' free choice of physicians from the medical group and importance is attached to preserving the desirable close doctor-patient relationship essential to effective medical care. For the visiting nurse organizations, the HIP contract did not in any way change their ideas and principles of working with private physicians as they have always worked with the doctors in the community. Nor does a contract with any group change the ideals and principles of the visiting nurse organizations concerning nurse-patient relationship.

THE CONTRACT

It is desirable to have the formal written contract as simple as possible, and provide for changes as needed in a separate statement of procedures. In the HIP contract it is agreed that "the nursing agency will provide visiting nurse service to HIP insured persons subject to the 'Policies and Regulations for Visiting Nurse Service Furnished to HIP Insured Persons' or any subsequent revision of these policies." Thus, the policies and regulations became part of the contract without encumbering it. In addition, the contract states that:

1. The insured person must be under the care of a physician affiliated with a HIP medical group.
2. Nursing visits will be made in the home, within the geographical area served by the nursing agency, and in accordance with nursing agency policies.
3. All nursing visits must be reported to and bills submitted to HIP at the end of each month for nursing services rendered in that month.
4. HIP will pay the nursing agency on a cost per visit basis, according to an annual cost-accounting method recommended by N.O.P H.N. and used extensively throughout this country.

Complete information was not available on which to base an accurate estimate of the volume of nursing service which might be needed or requested, although experiences of insurance companies and visiting nurse organizations were carefully reviewed. The estimate made was knowingly and deliberately set about 50 per cent higher than any other estimates in order to insure adequate funds to provide for an unusual amount of service. This estimate was set at a *ceiling* of 300 nursing visits per 1,000 insured persons per year.

The *Policies and Regulations* for nursing service allowed for flexibility, and included most of the generally accepted policies in visiting nurse organizations such as a list of services provided (sent to all physicians participating in medical groups), hours for receiving calls, methods of obtaining a physician's orders and keeping him informed of the patient's progress, and methods of certifying the eligibility of a patient to receive service as a HIP insured person. Great effort was made to keep the record system as simple as possible; but as visiting nurse organizations know from long experience, the need to report services rendered to many different groups such as welfare departments, insurance companies, industries,

private physicians, and many other groups presents a definite problem. A new contract, such as the one with HIP, will inevitably present an additional need for close supervision of records and the learning of another set of regulations regarding many record items. This is a fact, not a complaint.

One policy of particular interest was that the nursing agency could accept a request for an initial home visit from *any* source. Needless to say, nursing service could not be continued without medical supervision of the patient, and effort is always made to secure medical orders before the first visit. But the fact that the insured person can request nursing service is very important and, in the first seven months' experience, the first request came from the family for 24 per cent of those who received nursing service.

Time does not permit further discussion of the many details of the plan, if I am to tell more of the story of our actual experience the first year. (A request to HIP, to Dr. Dean Clark, Medical Director, or to Miss Clara Richmond, who is the nursing consultant on the Medical Division Staff, will provide copies of all available material and answers to specific questions about the nursing service.)

As previously mentioned, the capitation rate was based on expected usage of services, with the understanding that this rate would be under constant scrutiny and subject to revision when sufficient experience was accumulated. It was estimated that a staff of 25 physicians in a medical group would be sufficient to provide an average of 7 physicians' services per person per year. According to the first year's experience, this estimate was high, but again it was considered advisable to plan for a maximum amount of service to allay all fears concerning the costs of this comprehensive program. What volume of requests for medical care would come from subscribers was an unknown factor.

I am indebted to the HIP Division of Research and Statistics for the following figures:

During its first year of operation, HIP had an enrollment which advanced from 2,643 on March 1, 1947, to 109,561 on February 29, 1948. Coverage was provided for a total of 701,299 months for subscribers and their dependents. These enrollee months are the equivalent of 58,442 enrollee years. For these insured persons, a total of 233,293 physician services were rendered. These services do not include radiologists' and pathologists' services nor any rendered by auxiliary personnel (office nurses, technicians. physiotherapists, etc.).

The physician services come to 4 per enrollee year. The nursing visits totalled 1,836 or 0.03 visit per enrollee year, (one nurse visit to about 127 physician services).

Of the 233,293 physician services, 30,511 were home visits of physicians. The nursing visits came to one per 16.6 physicians' home visits.

In the case of Medical Group "X", which is one of the HIP's most substantial medical groups with a high proportion of children in the enrollment and with excellent medical standards, the record shows 7,063 enrollee years and 189 nursing visits. This is a little less than 0.03 nursing visit per enrollee year. The physician services, as narrowly defined above, furnished by this medical group, came to 33,348 or 4.7 per enrollee year. There was one nurse visit per 176 physician services and one per 27 physician home calls.

A comparison with the original estimate for home nursing service, which you remember was deliberately set at a ceiling, shows that the nursing service given was only 1/10 of the amount estimated.

With the efforts made to send com-

plete information about nursing service available to each physician in the medical groups, and a list of nursing services sent to each subscriber, it was expected that the number of nursing services used would increase considerably as the year progressed, and as enrollment grew. This did not happen.

The kinds or types of home nursing service given to HIP patients compare favorably with the general programs of the visiting nurse associations in New York. Home nursing service for cancer patients, particularly following surgery, service for long-term illness, and giving of injections, especially penicillin, have been the most frequent services requested. Teaching of rehabilitation exercises following fractures have been requested for several patients. Less than the expected amount of maternity service has been requested, and for only two cases has the physician asked the nurse to teach the patient to give himself insulin for diabetes. The nurses taught, with the physicians' approval, several families to give injections to the ill member of the family and they also taught families how to give general nursing care to acutely ill patients who needed care throughout the day and night. The total figures for HIP service seem too small to be significant percentagewise.

There is no reason to believe there was dissatisfaction with the nursing service given, for no complaints were received and a few fan letters can be claimed. But there is reason to believe that some of the medical groups were concerned about the 10 cents of their capitation money which was set aside for nursing service. It is to be expected that this, as well as many other problems, may need to be discussed and changed as indicated. It may be that, for an experimental period, HIP will decide to pay for nursing service separately and not have it included in the medical group capitation. This would seem desirable. A nursing agency might also, for an experimental period, agree to accept a capitation payment, although this would require careful study to satisfy all groups concerned. It may also be advisable to carry out an experiment whereby a highly qualified public health nurse would work with one of the medical groups, preferably at a center connected with a teaching institution. Both the physicians and the insured persons may need a more specific outline of the functions which nurses should perform in the home and careful delineation of the circumstances under which nursing service should be requested by the subscriber. It is also important to establish more definitely the functions which nurses should perform at the medical group centers. Such an experiment would need a review with the doctors on a case by case basis, with knowledge of the needs of the patients and families for services which the nurse could provide.

But the most important point is a willingness to experiment. It will be a long time before we find the answers to all the unknowns unless we do experiment, and the appreciation of this fact by HIP is one of the reasons why it is of the greatest interest to our agency to participate in this health insurance plan. Another reason is the sincerity and high ideals demonstrated by the administrators of HIP and the social implications for the community. In a farsighted and progressive way effort is being made to establish for the workingman a means whereby a high quality of medical care can be provided through a prepayment health insurance plan.

Studies on Survival of Influenza Virus Between Epidemics and Antigenic Variants of the Virus*

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THE studies here reported comprise, first, surveys at approximately monthly intervals during the late fall, winter, and early spring for influenza virus in the throats of apparently healthy persons and of persons with upper respiratory symptoms; and second, a study of the antigenic characteristics of the strains isolated. Mention is also made of a limited experiment on human vaccination.

The surveys for virus were made in a state vocational school for boys. The boys were from 17 to 21 years of age and the number in the school ranged between 750 and 800. While for the most part they slept in individual rooms, they intermingled during meal, work and play hours. Sick call was held each morning and elevation of temperature was the customary criterion for hospitalizing those with respiratory symptoms and was also regarded as an essential feature for the clinical diagnosis of influenza.

Throat washings were secured by gargling 20 ml. of 2 per cent normal horse serum in a phosphate buffered solution. Following the morning sick call, throat washings were taken from those who at the time had acute respiratory symptoms and, in addition, from apparently healthy individuals selected at random, except as otherwise indicated. A total of 50 specimens, more or less, were collected at each visit. The bottles containing the washings were immediately iced, brought to the laboratory, and inoculated the same day.

At the laboratory the washings were pooled in groups of five, penicillin and sulfadiazine added to control bacterial growth, and 0.2 ml. of the pool inoculated into the amniotic sac of each of 6 chick embryos. Washings from persons with acute respiratory symptoms were inoculated separately or placed in the same pool. After incubating the embryos for 4 days at 35° C., the amniotic fluid and either the lung and trachea or sac membrane were harvested and pooled according to group. The sac membrane and lung and trachea were ground and suspended in the amniotic fluid. The suspension thus prepared was inoculated into a second group of normal eggs. The passages were thus continued until at least three passages had been completed. The agglutination of chicken erythrocytes was the test used for detecting virus.

Between November, 1946, and April, 1948, throat washings were collected on 15 occasions. These collections comprised 739 specimens, 716 of which were examined in pools of approximately 5 in each pool, making a total of 141 pools; and 23 specimens derived from persons with respiratory symptoms were individually inoculated.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

Influenza virus was isolated from 4 of the 141 pools; one on February 27, one on April 1, and 2 on May 15, 1947. At the time of the first isolation (February 27) no recognized clinical influenza had occurred in the school since the beginning of the survey. Indeed, the first clinically diagnosed case did not occur until April 1, 32 days later. During the succeeding 3 weeks there were 31 boys who had symptoms usually ascribed to influenza. While the epidemic was active, influenza virus was isolated from pools of throat washings of symptomless persons and from 6 of 9 boys in the acute phase of the disease.

Examination of pools of washings collected 10 and 40 days following cessation of the epidemic failed to reveal the virus. In these latter pools there were purposely included throat washings from a number of boys who had suffered from an attack of influenza during the epidemic and from those comprising the pools in which influenza virus had been previously identified. Nor was virus detected in washings taken in November and December of 1947, and in January, February, and April of 1948. Since the 1947 epidemic, no illnesses have occurred which warranted a clinical diagnosis of influenza.

In brief, influenza virus was found in the throats of apparently normal persons 32 days prior to the onset of the clinically manifest epidemic and while the epidemic was active, but not on previous or subsequent occasions. Moreover, except during the epidemic, there was no detectable association of influenza virus with upper respiratory symptoms.

Two questions arise in connection with these findings: First, were the isolations legitimate, particularly the one made prior to the epidemic? It is felt that this question can be answered in the affirmative, because the egg passages were made in a laboratory wing where no other influenza virus had been introduced and because the strains isolated, as will appear later, were antigenically different from any laboratory strains then in our possession. Second, was the technique employed adequate to identify influenza virus if present in minute amount or if bound by the presence of antibodies? It is obviously impossible to give a categorical answer to this question. It may be said, however, that before undertaking the survey, several methods which had been described for concentrating influenza virus were investigated such as adsorption by charcoal, precipitation by alcohol, high speed centrifugation, adsorption and elution by chicken erythrocytes. Although further concentration of relatively low dilutions of virus suspended in a diluent free from foreign matter can be achieved by these procedures, no significant concentration of high dilutions of the virus in throat washings was consistently obtainable. Thus, efforts to concentrate virus in the pooled throat washings were abandoned. It was found, however, that the addition of concentrated heat-inactivated virus to a neutral serum-virus mixture, as described by McKee,[1] would, even in highly dilute mixtures, release some of the active virus, and this procedure was employed in examination of throat washings taken subsequent to the epidemic when humoral antibodies were more likely to be present.

Isolation of virus from persons with symptoms of influenza—During the epidemic period (March and April) in 1947, throat washings from 17 persons with acute respiratory symptoms were inoculated into embryonated eggs, as above described, and virus was isolated from 12. Six of the positive specimens came from the boys' vocational school, situated 130 miles north of New York City; 1 from a girls' school at Poughkeepsie, N. Y.; and the remaining 5 from New York City and vicinity. So far this year there has been no epidemic

TABLE 1

Cross-Hemagglutination Titrations with Hamster Antisera

		Virus										
Antisera	*Year Isolated*	*1229*	*1234*	*1238*	*1243*	*Pool 52*	*Pool 63*	*1233*	*965*	*PR8*	*Lee*	*Swine*
1229	1947	*512*	256	128	256	128	0	0	0	0	0	0
1234	"	512	*512*	256	512	128	32	0	0	0	0	0
1236	"	128	256	*1024*	512	0	0	0	0	0	0	0
1243	"	256	512	256	*256*	32	32	0	0	0	0	0
Pool 52	"	4096	2048	1024	1024	*1024*	128	0	0	0	0	0
Pool 63	"	1024	1024	1024	2048	64	*256*	0	64	64	0	0
1233	"	0	0	0	0	0	0	*1024*	0	0	0	0
965	1943	0	0	0	0	0	0	0	*256*	512	0	0
PR8	1934	0	0	0	0	0	0	0	0	*512*	0	0
Lee	1940	0	0	0	0	0	0	0	0	0	*512*	0
Swine	1930	0	0	0	0	0	0	0	0	0	0	*512*

NOTE: Initial serum dilution 1 to 32, and " O " signifies that there was no inhibition at this dilution. Four hemagglutinating units were used. All strains with exception of PR8, Lee, and Swine influenza had been isolated and passaged only in egg embryos.

in the boys' vocational school and no influenza virus has been isolated. But a strain was obtained in April of this year from one of two sick children in a family living in the suburbs of New York.

With one exception, all of these strains, as well as those obtained from the pooled throat washings, were readily adapted to growth in the allantoic sac after several amniotic passages. This exceptional strain, designated as 1233, will be referred to later.

The antigenic characteristics of the strains isolated—Immune sera were produced from several species of animals, including ferrets, hamsters, and rabbits. The ferrets and hamsters were immunized by intranasal instillation and the rabbits by intraperitoneal inoculation of allantoic or amniotic fluid of infected chick embryos. In some instances it was necessary to give hamsters a subsequent intraperitoneal inoculation to obtain an adequate immune response.

Hemagglutination inhibition—In performing this test, twofold dilutions of the serum were made and the virus antigen and chicken erythrocytes added in sequence. After standing 1 hour in the icebox, readings were made by the pattern method.[2]

Table 1 shows the result of cross-titrations with hamster immune sera. These titrations were made before the 1948 and other strains included in subsequent titrations were available. It will be noted that with the exception of strain 1233, the 1947 strains form a compact group and are quite different not only from the classical type strains (PR8 and Lee) and Swine influenza virus, but also from a 1943 A type strain (965). The lower titers obtained with Pool 52 and 63 strains may be attributed largely to the avidity factor, since antisera of these strains effectively inhibit all other 1947 strains save 1233. It will also be observed that 965 antiserum inhibits PR8 but that the reverse does not hold. The 1233 strain stands apart and appears to be immunologically unrelated to all of the other strains.

Table 2 reflects the results of titration with immune rabbit sera and includes, in addition to representative strains isolated in this laboratory in 1947, a strain FM1 isolated in 1947 from an influenza suspect at Fort Monmouth, New Jersey (received through the courtesy of Dr. J. E. Smadel), an Australian strain (CAM) isolated in 1946, and a strain (1265) isolated by us

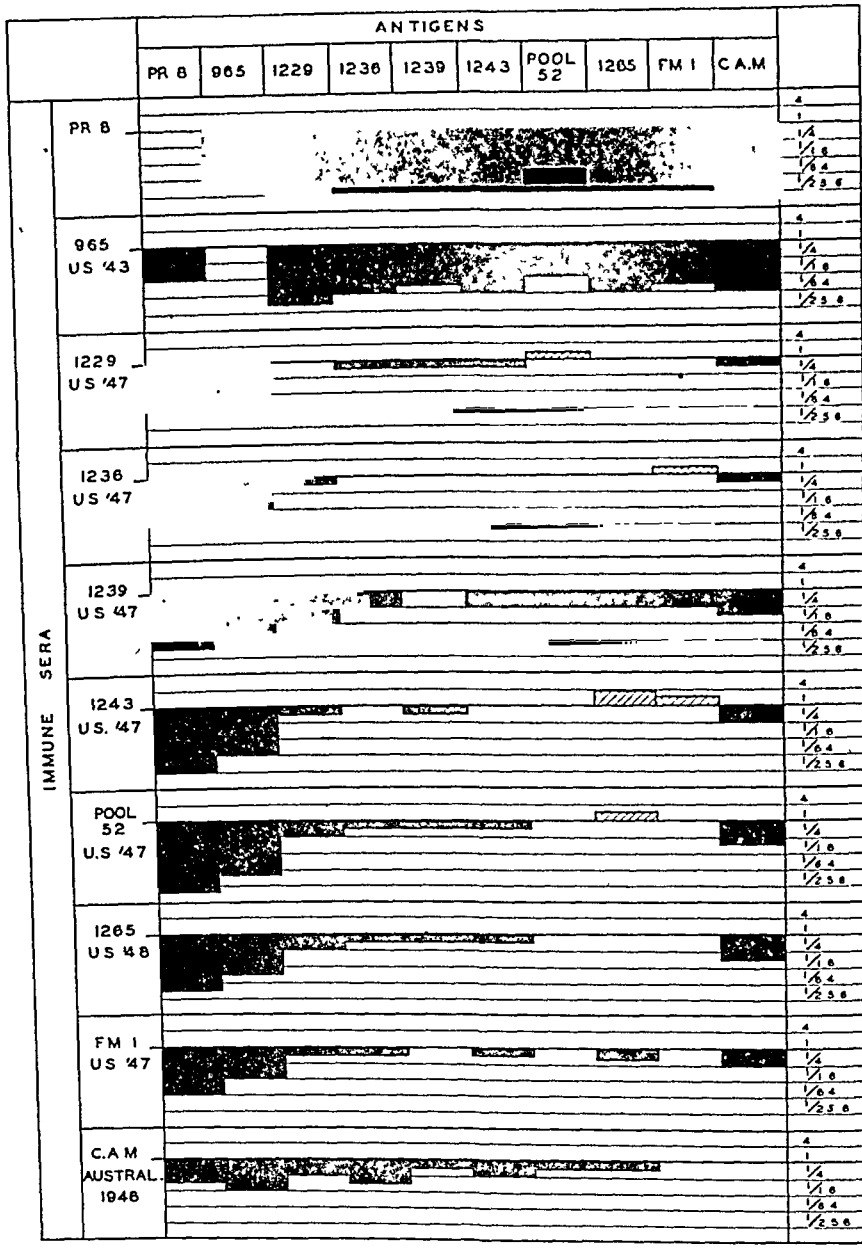


FIGURE 1—A Diagrammatic presentation of results of cross-hemagglutination titration shown in Table 2 after applying an avidity factor and dividing the product into the homologous titer which is assumed to be unity. The black columns below the base line represent the fractions obtained by dividing the heterologous titer into the homologous titer. The cross-hatched columns above the base line are indicative of heterologous titers which were greater than the homologous titer.

TABLE 2

Cross-Hemagglutination Titrations with Rabbit Antisera

		Virus										
Sera	*Year Isolated*	*PR8*	*965*	*1229*	*1236*	*1239*	*1243*	*Pool 52*	*1233*	*1265*	*FM1*	*CAM*
PR8	1934	*8192*	32	64	0	0	0	32	0	0	0	32
965	1943	256	*1024*	64	0	32	0	32	0	0	32	64
1229	1947	0	0	*2048*	128	128	128	256	0	256	256	512
1236	"	0	0	1024	*256*	256	256	128	0	256	512	512
1239	"	32	0	512	256	*1024*	256	128	0	256	256	512
1243	"	0	0	4096	1024	512	*1024*	512	0	4096	2048	1024
Pool 52	"	0	0	4096	1024	1024	1024	*1024*	0	4096	2048	1024
1233	"	0	0	0	0	0	0	0	*2048*	0	0	0
1265	1948	0	0	1024	256	256	256	256	0	*512*	512	256
FM1	1947	0	0	1024	128	256	128	128	0	128	*256*	256
CAM	1946	128	0	512	32	128	64	64	0	128	256	*1024*

NOTE: Initial serum dilution 1 to 32, and "0" signifies that there was no inhibition at this dilution. Eight hemagglutinating units were used. All strains with the exception of PR8 had been isolated and passaged only in egg embryos.

in April, 1948. Again it will be seen that all of the 1947 strains are related with the exception of 1233. They are also closely related to FM1 and the 1948 strain (1265). It is of special interest to observe that the Australian strain (CAM), though differing somewhat, appears to fall into this group. Certainly it is more closely related to the 1947 strains than the 1943 strain.

These differences and relationships become clearer if an avidity factor, as recommended by Hirst,[3] is applied and the product divided into the titer of the homologous serum which is assumed to be unity. The results are illustrated in Figure 1. Strain 1233 is not included in this figure, since there was no cross-immunity whatsoever between this and the other strains tested. Similar results were obtained with the *in ovo* neutralization test.

When, however, the hemagglutination inhibition test was applied to acute and convalescent phase human sera, the relationship of the virus producing the epidemic in 1947 to PR8 became evident. All of 15 persons from whom acute and convalescent phase sera were obtained showed a rise in titer to PR8 following the influenzal attack, although the rise was not so great as to a 1947 epidemic strain.

The broader immune response of adult human beings as compared to animals is probably due to previous conditioning with type A virus infections. Indeed, this may be demonstrated in animals. Ferrets and hamsters infected, first with PR8, and after an interval infected with a 1947 strain, show a further rise in antibodies to PR8 following the second infection.

Complement-fixation — The complement-fixation reaction is generally recognized as being less strain-specific than hemagglutination inhibition and is therefore useful in demonstrating kinships rather than minor differences. Yet, as will be observed from Figure 2, there is a marked difference between PR8 and the 1947 and 1948 strains. The 1943 strain (965) appears to lie between the two.

Human vaccination experiment—At the time the epidemic occurred in the vocational school there were 176 boys who had received 4 months previously a mixed A and B type commercial influenza vaccine and 601 who had not been vaccinated. The attack rate among the vaccinated was actually

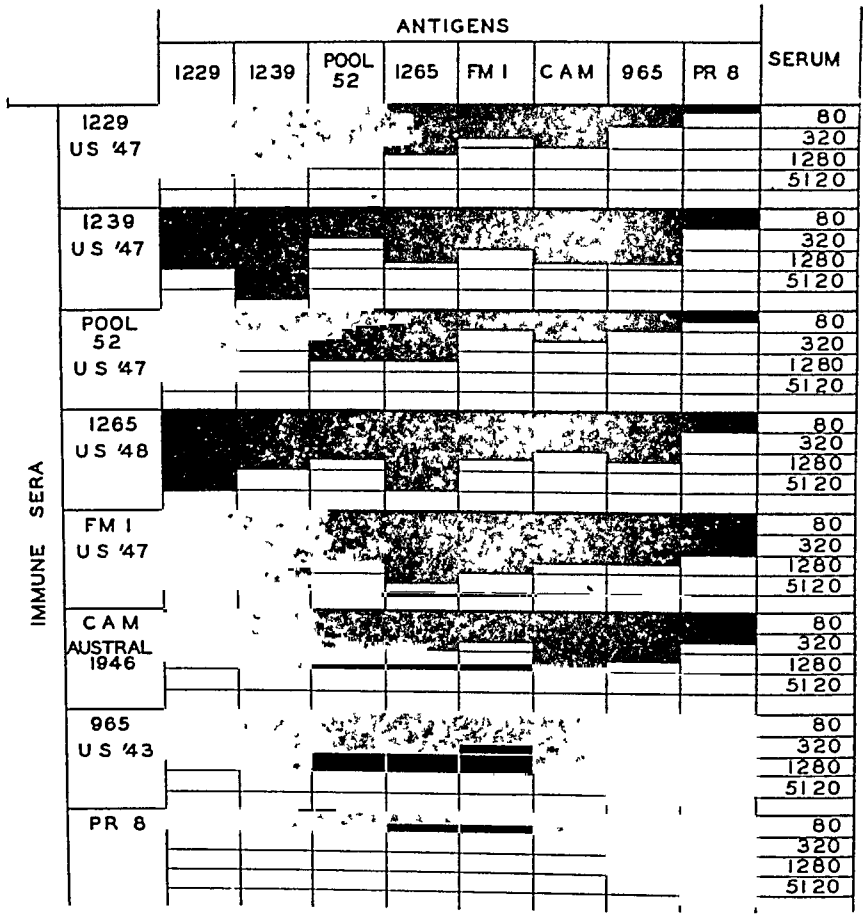


FIGURE 2—A diagrammatic presentation of complement-fixation titration of immune ferret sera The black columns below the base line indicate the dilution of the serum shown in the column to the right at which fixation of complement occurred

One and one-half units of guinea pig complement were used in these tests Whole allantoic fluid, appropriately diluted, was employed as antigen.

higher (6.3 per cent) than among the unvaccinated (3.3 per cent). The difference is not statistically significant, but certainly there is no suggestion that the vaccine afforded protection.

The 1233 aberrant strain — This strain is still under study and a more complete description of it will be published later. Suffice to say here that it was isolated in March, 1947, from the throat washings of a man living in New York City. At the time the throat washings were taken, he had a mild headache and backache and coryza which persisted for only 24 hours. Unfortunately no acute-phase blood was taken, but blood specimens secured 1, 3, 6, and 12 months following the attack showed a progressive fourfold and eightfold drop in the hemagglutination and complement-fixation titers respectively to this strain. There was no significant alteration in titer in these series of sera to either A or B type influenza viruses.

Cross-titration by hemagglutination

and complement-fixation of immune animal sera has shown no immunological relation of strain 1233 to A and B type influenza viruses. Nor has the examination of acute and convalescent human sera from known A and B type influenza shown a rise in antibodies to this strain. With the exception of two of three acute and convalescent phase sera received from Venezuela and obtained from persons who had an upper respiratory illness, we have not so far encountered any other respiratory infection which has produced an immune response to this strain.

Besides its unique antigenic characteristics, it is peculiar in other aspects. It has been exceedingly difficult to adapt to growth in the allantoic sac and to this extent it resembles some of the B type strains. Although it agglutinates chicken erythrocytes, its behavior in this respect is erratic.

Hamsters, ferrets, and monkeys develop antibodies following intranasal inoculation. The strain has been carried through three passages in ferrets by transfer of nasal washings, but repeated attempts to establish it in mice have failed.

It would seem to belong to the influenza group of viruses, since it agglutinates chicken erythrocytes, agrees approximately in size, and like them is pneumotropic, since it produces lung lesions in chick embryos and infects hamsters, ferrets, and monkeys by intranasal inoculation. It is serologically unrelated to mumps and Newcastle disease viruses.

DISCUSSION

The only significant positive finding revealed in the surveys for influenza virus is that the virus may exist in a limited compact population for at least one month before giving rise to definitely recognizable clinical manifestations. That the virus was found in the throats of symptomless persons during the epidemic is not surprising, and offers further evidence of the general dissemination of the virus during such episodes. The failure to discover virus except shortly before and during the epidemic suggests that the circulation if not the sojourn of the virus in this institutional population was of limited duration. This would tend to support the view that the virus is maintained by a chain of silent or manifest infections and is not continuously harbored in a limited and more or less stabilized human population.[4, 5]

The occurrence of virus variants or mutants is not only of genetic interest but also of considerable practical importance. Minor variations in type A influenza strains have long been observed and may in part be attributed to passage in laboratory animals, but the deviation of the 1947 strains, as here noted and previously reported by others,[6-11] is of such magnitude as seriously to complicate the control of the disease by vaccination. Several questions require answering. Among these are: (1) Are the number of variants finite or are they constantly developing and thus perhaps infinite in number and unpredictable in their appearance? (2) What are the factors which influence their development? (3) What deviation from the norm of the A and B types is of public health significance, and what should be the methods and criteria for recognizing such deviation? (4) What feasible steps can be taken to recognize expeditiously the appearance of a new variant?

It seems to us not improbable that variants are constantly developing and that when one which is sufficiently virulent and different from preëxisting strains encounters a relatively susceptible population, widespread infection is likely. In this connection the similarity of the strain isolated in Australia in 1946 to those found in this country in 1947 and 1948 is of interest.

There are probably many factors which influence the development of variants. For example, it has been noted that repeated passage through laboratory animals may produce changes in the antigenic qualities [12] and Dr. A. Saenz and Dr. J. A. Kerr, working in these laboratories, have found that one of our 1947 strains, after a number of passages in embryonated eggs in combination with homologous immune sera, had veered antigenically from the parent strain. It is thus conceivable that the natural passage of influenza virus through human subjects where antibodies are encountered as the result of previous infections may give rise to strain deviation.

We now have at our disposal a number of methods of varying sensitivity for detecting immunological differences among influenza virus strains. But it may be questioned if our experience is as yet sufficient to establish exact criteria for determining the magnitude of the deviation from the type norm that is of practical significance.

The aberrant 1233 strain, though differing markedly from all other influenza strains with which it has been compared, may prove to be of little public health import, as so far it has been linked to only two cases of respiratory infection other than of the person from whom it was isolated.

As to the expeditious recognition of new strain variants, the move to create a World Influenza Center with appropriately situated sub-centers for collecting information and material and for either classifying strains supplied by other laboratories or distributing standardized immune sera and antigens would seem to be a step in the right direction.

SUMMARY

1. A search for influenza virus in an institutional population during the fall, winter, and spring months revealed the presence of virus in the throats of symptomless persons 32 days preceding a clinically manifest epidemic and during the epidemic but not on other occasions.

2. All save one strain isolated from influenza suspects in 1947 and 1948, as well as the strains isolated from the throats of symptomless persons shortly preceding and during the epidemic of 1947, are antigenically similar. They are also antigenically related to a strain (CAM) isolated in Australia in February, 1946. While they may be regarded as belonging to type A influenza virus, they differ markedly from PR8 and an A type virus isolated in 1943.

3. There was no significant difference in the influenza attack rate among persons vaccinated with a commercial A and B type influenza vaccine 4 months preceding an institutional epidemic in 1947 than among those who were not vaccinated.

4. Reference is made to a respiratory virus strain isolated in 1947 which appears to be antigenically unique.

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Comparison of Pertussis Cultures by Mouse Protection and Virulence Tests*

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THE successful use of intracerebral infection in mouse protection tests of pertussis vaccine [1, 2] has called attention to a new method for measuring the virulence and protective properties of single cultures of *Hemophilus pertussis*. The practical value of such a study is apparent in relation to the criteria for selection of cultures for vaccine preparation. In the present study, the object has been to rank a group of cultures according to virulence and according to mouse protective properties, and to determine whether any correlation could be found between the two characteristics.

CULTURES FOR STUDY

A group of 76 cultures of *H. pertussis* (70 smooth and 6 rough) were tested for virulence; 41 of these (36 smooth and 5 rough), also for mouse protection. In addition to pertussis cultures, 33 parapertussis cultures were tested for virulence, 2 of them for protection against *H. pertussis;* and 4 bronchiseptica strains were tested for virulence, one for mouse protective properties.

Source and maintenance of cultures

Of the 70 smooth pertussis strains, 55 were isolated in Grand Rapids from routine diagnostic cultures; 10 were received from England, 2 from Mexico, 1 from Australia, and 2 from New York. The 6 rough cultures were old stock strains received from other laboratories where they had been carried for years on various laboratory media, some of them with isolation dates as early as 1916. The 33 parapertussis cultures included 19 isolated by our own laboratory, and 14 were from England, Mexico, and various places in the United States. Three of the *Br. bronchiseptica* cultures were from rabbits and one from a child.

Since 1939, cultures have been dried from the frozen state, the newly isolated ones within 6 transfers from the original plate. Two smooth strains of the study group, S5 and S160, with isolation dates in 1932 and 1933, respectively, were transferred on Bordet-Gengou medium at monthly intervals until 1939, when they were lyophilized.

For study, the cultures were revived from the dried state on Bordet-Gengou medium, and used within six subcultures. Division into rough and smooth strains was made on the basis of growth characteristics, colony appearance, production of hemolytic zone, and morphology of the organisms in stained preparation. According to these generally accepted criteria the cultures included for study were classified as either smooth or rough; intermediate strains were not available.

The cultures were tested for agglu-

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tinability using the rapid technique described in *Diagnostic Procedures and Reagents*,[3] and a single antiserum prepared against culture 18-323, the strain used for infection in the mouse protection tests. The agglutination tests were used to check the identity of the cultures and were not intended as a detailed serological study. As was expected, the rough strains were not agglutinated. However, an unexpected variation in agglutinability was observed among the 64 smooth cultures. Although it has been rather generally accepted that smooth cultures of *H. pertussis* form a serologically homogeneous group, it was found that only about half of the cultures tested had titers in the range of the homologous strain which varied around 1:10,000. Eighteen were agglutinated in the range 1:2,000 to 1:5,000; and 11 to low titer only, that is, 1:200 to 1:1,500. These findings suggest the need for further serologic study.

TESTS FOR VIRULENCE

The virulence of pertussis cultures probably has been tested most frequently on the basis of intraperitoneal injections of mice with mucin suspensions. The large killing dose (1 to 3 billion) and the lack of an incubation period, limit such a test to relatively rough determinations. The comparatively small doses of virulent cultures required to kill mice infected by the intracerebral route, and the fact that the incubation period between injection and the first symptoms suggested a true infection, offered promise for a more sensitive virulence test.

Virulence test procedure

Fifteen white mice in the approximate weight range of 16–20 gm., are used for each culture, five mice for each of three graded doses 10^3, 10^5, and 10^7. The culture is grown for 24 to 30 hours on Bordet-Gengou medium plus peptone and the growth harvested into 1 per cent casamino acid. The suspension is adjusted to 5 bil. organisms per ml. by photometric methods and the necessary dilutions made in 1 per cent casamino acid to make the required dose in a volume of 0.03 ml. The mice are injected intracerebrally under anesthesia within 2½ hours after the culture has been harvested.

The endpoint is defined as the least dose that kills the majority of a group of mice within 14 days. Deaths during the first 48 hours are considered as due to injury, and if any such occur in a group of 5 mice, that group is considered unsatisfactory for establishment of the endpoint. It may be mentioned that the limits of the testing range were suggested by many preliminary tests. Smooth strains appeared to be included in the range ending with 10^7. Observations in a higher range were limited by the number of organisms that could be injected into a mouse's brain as an infective dose, without causing early death with toxic symptoms.

To obtain a more precise measurement of the virulence, a test is performed with larger groups of mice, in the range indicated by the first test. For example, if the endpoint with a particular culture is 10^3, a further test with 30 mice divided into 3 groups and injected with doses 80, 400, and 2,000 respectively, will usually establish the LD/50 of the culture.

Results of virulence tests

The results of intracerebral virulence tests with 70 smooth and 5 rough strains of *H. pertussis*, 33 parapertussis and 4 *Br. bronchiseptica* cultures are summarized in Table 1.

The cultures fell roughly into two groups with respect to their virulence. Of the 70 cultures classified as smooth, 55 or approximately 80 per cent, were less virulent and required the larger doses of 10^4 to 10^7; 15 or approximately

TABLE 1

Results of Virulence Tests: Summary

	No. of Strains with Endpoints * as Indicated			
	10^3 or Less	10^5 to 10^7	No Virulence at 10^7	Totals
H. Pertussis				
Smooth	15	55	0	70
Rough	0	0	5	5
Parapertussis	0	2	31	33
Br. bronchiseptica	3	1	0	4
				112

* Endpoint is defined as the least dose that kills the majority of a group of mice.

20 per cent required a dose of only 1,000 or fewer organisms to kill the majority of a group of mice. In tests for the LD/50 of these 15 cultures, their endpoints were found to range from approximately 100 to 1,000.

Of the 33 parapertussis cultures tested, 31 were not virulent in the range including 10^7, and 2 had an endpoint of 10^7. Four cultures of *Br. bronchiseptica* were tested and all were virulent, 3 of them in the smaller doses.

MOUSE PROTECTION TESTS

Procedure

The procedure for a mouse protection test, using the intracerebral route for challenge, has been described previously.[1] Briefly, for each antigen tested, 44 white swiss mice, 13–16 gm., sexes equally divided, were given a single injection intraperitoneally. Four groups of 11 mice each received graded doses, such as 0.06, 0.3, 1.0 and 1.5 bil., respectively, and after a rest period of 10 days they were injected intracerebrally with a challenge dose of approximately 50,000 organisms as determined photometrically. This dose was in the approximate range of 100 to 200 times the LD/50 dose of the challenge culture 18-323. In each experiment there was included a similar group of mice injected with graded doses of a reference antigen and also an unimmunized group of mice for checking the LD/50 and test dose of the challenge culture. At the time of injection of the mice, cultures on Bordet-Gengou medium were made for colony counts as a check on viability. After a 14 day observation period, the results of the test were summarized in terms of dead and surviving mice, and analyzed by the method of Litchfield and Fertig[4] using the table published by Weiss.[5]

All tests of antigens prepared from individual cultures were included in the data with the exception of those which for some particular reasons were unsatisfactory. An individual test was excluded from analysis if the response to immunization was not in proportion to the graded dosage; or if it was not possible to fit a line to the plotted points with reasonable accuracy. All tests in a particular experiment were excluded if the reference antigen and two or more test antigens had exceptionally high endpoints or poorly graded responses. Also, in tests with only three graded doses in which the smallest dose protected none and the largest dose protected all of the mice, no endpoint could be established even though there was evidence of protection, and the antigen was retested with a different dosage schedule.

In addition to the 36 tests tabulated for the vaccines prepared from the smooth cultures, 5 tests were not analyzed for one or another of the reasons stated. Also, antigens from 2 other cultures were omitted from analysis because none of their tests was satisfactory for analysis.

Protection tests with smooth strains of H. pertussis

Based on the results of single tests, always in experiments which included a reference antigen and other test antigens, the ED/50's of the vaccines prepared from the 36 single cultures were as listed in Table 2.

TABLE 2

ED/50's in Mouse Protection Tests with Vaccines Prepared from 36 Smooth Strains of H. Pertussis

0.05	0.15	0.25	0.33
<0.06	0.16	0.26	0 43
<0.06	0.17	0.26	0 43
0.06	0.18	0.29	0 46
0.06	0.19	0.30	0.48
0.07	0.20	0.30	0 51
0.12	0.20	0 30	0.52
0.14	0.22	0.30	0 61
0.15	0.23	0.33	>1.50

Median = 0.24

1st Quartile = 0.15 3rd Quartile = 0.33

Variations in protective properties were observed among the 36 cultures, as was expected. The whole range of results is from 0.05 to 1.5 billion, the median is 0.24 billion and the middle 50 per cent between 0.15 and 0.33. In order to judge the significance of observed differences in protective properties it is necessary to know what variations may be expected to occur from test to test. Light is thrown on this question by the results of 45 different tests of vaccines prepared from culture 10-536 (the reference antigen used for the previously published comparative tests[1] and for 18 of the tests of the 36 single culture vaccines in this study).

In the ED/50's listed in Table 3 the median is 0.23 billion and the middle range is 0.16 to 0.38. Each of the 36 single culture antigens in Table 2 might be expected to show a similar distribution about its respective endpoint.

Because of the distribution of ED/50 values of the 36 smooth cultures in relation to the median of the tests with the single culture 10-536, it is probable that most of the cultures are not very different in protective properties from 10-536. However, those with the lowest ED/50's suggesting better protective properties form a group for further study in repeated tests in the search for superior cultures for vaccine production. Already repeated tests have been done on some of these cultures.

Protection tests with rough pertussis strains and with related cultures

Mouse protection tests with antigens prepared from 5 rough cultures of *H. pertussis* demonstrated no protection. Vaccines prepared from two parapertussis cultures also provided no protection against *H. pertussis* infection. One bronchiseptica culture vaccine appeared to provide slight protection against pertussis infection. Further cross-protection tests are planned.

Correlation of endpoints of virulence and protection tests

If the 36 cultures of smooth *H. pertussis* with their protective endpoints are classified according to the results of their virulence tests, it is found that 11 were in the virulence group with LD/50 values of 10^3 or less, and 25 in the virulence group with endpoints of 10^4 to 10^7. Four of the 11 more virulent and 14 of the 25 less virulent strains had protective ED/50 values about the same as or lower than the

TABLE 3

ED/50's in 45 Mouse Protection Tests with Vaccines Prepared from Culture 10-536

0.05	0.16	0.23	0.39
0.06	0.16	0.24	0.42
0.07	0.18	0.27	0.48
0.11	0.19	0.28	0.48
0.12	0.19	0.28	0.52
0.13	0.20	0.32	0.57
0.13	0.20	0.32	0.76
0.13	0.21	0.35	0.83
0.13	0.22	0.35	0.96
0.15	0.22	0.36	1.00
0.15	0.23	0.38	1.10

0.23 (Median)

1st Quartile 0.155 3rd Quartile 0.385

median value (0.24 billion) for the 36 cultures; that is, the values were in the direction of better protection.

It is evident that there is a lack of association between relative degrees of virulence and protective properties of the 36 smooth strains in which the killing dose ranged from 10^2 to 10^7. In contrast, the 5 rough cultures of *H. pertussis* were found to be without either virulence or protective properties.

DISCUSSION

The results of the comparative tests in this study can scarcely be considered without raising the question of their bearing on the selection of strains for the preparation of pertussis vaccine. Until a practical mouse protection test became available, the only criteria that could be used were identity tests for smooth strains, and some rough test for laboratory animal killing properties. The use of strains rather recently isolated, or kept in the dried state since isolation, has been a precaution in line with the effort to use smooth antigenic cultures. Also several strains instead of one have been used to allow for possible unknown variations in antigenicity. With the availability of a mouse protection test, there seems to be a sounder basis for selection, even though we recognize that mouse protection cannot be translated directly into terms of child protection.

As might have been expected, the 5 rough strains tested were non-protective. Among the 36 smooth cultures, the variations in ED/50's of the majority were within a relatively small range, suggesting that in general a culture with smooth characteristics would have protective properties. The variations do point out a small group of cultures for further study in repeated tests to determine whether the low ED/50's represent a true superiority in protective properties.

In relation to vaccine production the experimental data presented emphasize the need for the greatest care in the selection and maintenance of smooth strains, and suggest an approach to the study of other factors.

SUMMARY AND CONCLUSIONS

Virulence

A mouse virulence test for cultures of *H. pertussis*, using intracerebral injection of the infective dose, has been outlined.

Of 70 smooth strains of *H. pertussis*, all showed virulence within the range of the test which employed test doses of 10^3, 10^5, and 10^7; 6 rough strains did not show virulence.

The 70 smooth strains fell roughly into groups of greater or lesser virulence; approximately 20 per cent were in the more virulent group and killed the majority of a group of mice in an intracerebral dose of 1,000 or fewer organisms.

Of 33 parapertussis cultures, only 2 showed virulence in the highest dose tested; the others did not. The 4 bronchiseptica strains were all virulent, 3 of them in the more virulent range.

Protective properties

The mouse protective ED/50's of vaccines prepared from 36 single cultures have been listed and the results evaluated in the light of 45 different tests of reference antigen 10-536. Single tests have indicated a group of cultures for further study in repeated tests in the attempt to find superior strains for vaccine production.

Vaccines prepared from 5 rough strains of *H. pertussis* and 2 strains of parapertussis gave essentially no protection; one strain of *Br. bronchiseptica* gave very little protection.

Correlation of virulence and protective properties

The 5 rough strains tested were non-

virulent and also non-protective when used in vaccines in mouse tests.

Among the 36 smooth strains tested there was no quantitative correlation between virulence and mouse protective properties.

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Short Course in Sewage and Industrial Waste Disposal Problem

The School of Public Health, University of Michigan, announces a 2 day short course to be given at the request of the Michigan Sewage Works Association. It is designed to meet a need indicated by the Association for a comprehensive technical review, analysis, and interpretation of the basic scientific considerations involved in problems of sewage and stream pollution. The course is presented especially for the benefit of the scientific worker of industrial and official agencies involved in sewage and industrial waste disposal. Registration is $5, through the School of Public Health, Ann Arbor, Mich.

The Diphtheria Epidemic in Amsterdam

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I. Spread of the Disease; Significance of Types

BEFORE 1939 diphtheria in the Netherlands was rare, in contrast to the German territories bordering the Dutch frontier where a severe epidemic raged. The first increase of diphtheria in the Netherlands was noticed in 1938–1939 in the south-eastern provinces near the German border. However, there was little diphtheria elsewhere in the country. In May, 1940, the Netherlands were occupied by the German armies, and contact of Dutch people with Germans became more frequent. Table 1 shows diphtheria morbidity in the Netherlands as a whole, and separately in Amsterdam, beginning with 1918, in which year diphtheria was more prevalent than it had been at any time since 1900. In 1944–1945 the data for the country as a whole were less reliable than those for Amsterdam because the south and middle parts became war territory. In Amsterdam, reporting continued and all cases were controlled by the public health authorities.

FREQUENCY OF THE VARIOUS TYPES OF DIPHTHERIA BACILLI IN AMSTERDAM

In July, 1939, typing became part of the routine work in public health laboratories. Till September, 1940, we isolated among the Amsterdam patients only mitis strains with the exception of two atypical gravis strains and one intermedius strain. However, among a group of 96 German Jewish refugee children in September, 1939, a diphtheria epidemic broke out of such a severe character as had hitherto been unknown in Amsterdam. From 26 patients 20 strains of diphtheria bacilli were cultivated, all of which belonged to the typical gravis type. The children were rigorously isolated and no con-

TABLE 1

Diphtheria Morbidity per 10,000 Inhabitants

Year	*Netherlands*	*Amsterdam*	*Year*	*Netherlands*	*Amsterdam*
1918	20.0	29.5	1933	5.1	7.0
1919	16.2	25.7	1934	3.6	4.4
1920	11.9	22.3	1935	2.1	1.7
1921	10.9	25.9	1936	1.8	1.0
1922	6.7	17.5	1937	1.2	0.8
1923	5.8	13.0	1938	1.5	1.6
1924	6.3	14.8	1939	1.4	1.0
1925	6.4	15.7	1940	1.9	1.2
1926	4.9	12.2	1941	6.0	2.1
1927	4.8	7.3	1942	21.5	17.3
1928	5.8	6.3	1943	62.3	98.2
1929	6.3	6.0	1944	65.8	102.5
1930	9.5	8.5	1945	53.5	73.5
1931	7.1	6.3	1946	28.6	48.7
1932	6.6	8.0	1947	11.0	15.7

tacts with the Dutch population occurred.

After September, 1940, several intermedius infections were diagnosed. The first cases were contacts of children who had returned from Austria. The disease did not assume an epidemic form and in the following months only isolated intermedius infections were found, many of whom were in German contacts.

After August, 1941, the first gravis cases in Dutch people were seen. These were practically all in German contacts. No cases were reported as developing from contact with people in the southeastern provinces. The gravis infections caused a severe form of the disease; often many patients in one family were ill and several died, but the disease remained confined to immediate contacts. This situation lasted till the summer of 1942, when all at once in August, the epidemic spread like fire among the population. In the first half of the year, 123 cases were reported; in the second half, 1,075. Table 2 gives the number of families infected with the various types in the first war years.

The prevalence of all types increased, but infection with intermedius and gravis strains constituted the larger part of the rising epidemic. Mitis infections were distributed evenly over the whole city and remained so during the epidemic. It appears, therefore, that a small number of imported cases may have been responsible for the increasing prevalence of gravis and intermedius types. Intermedius and gravis infections, however, which first were irregularly scattered, in the sudden increase in 1942 became mainly localized in certain foci. These foci were noted especially in those regions where dwelling conditions were poorest. As the epidemic continued, gravis and intermedius types also spread over the whole city.

At the height of the epidemic, all strains isolated during one month were typed. In 1944, this became impossible owing to the very severe restrictions. Only starch fermentation was

TABLE 2

Number of Families Infected with the Various Types of Diphtheria Bacilli

Year	*Month*	*Mitis*	*Intermedius*	*Gravis*	*Not Typed*	*Total*
1940	I–IX	43	0	1 (atypical)	22	66
	X–XII	31	11	0	7	49
1941	I–XII	103	9	7	17	136
1942	I–VI	103	4	10	17	134
	VII–XII	243	140	269	207	859

TABLE 3

Distribution of Types of Diphtheria Bacilli in Patients and Carriers in the Amsterdam Epidemic

			Percentage			
Year	*Month*	*Total Examined*	*Mitis*	*Intermedius*	*Gravis*	*Non-typable* *
1939	IX–XII	32	(91)	(3)	(6)	0
1940	I–XII	86	(86)	(13)	(1)	0
1941	I–XII	140	82	8	10	0
1942	I–XII	1,364	50	13	36	1
1943	X	836	25	29	45	1
1944	V–X	725	66(?)		34(?)	?
1945	XI	318	62	12	23	3
1946	V–X	669	59	11	23	7
1947	I–V	305	43	18	29	10
	VIII–XII	372	45	8	42	5
1948	I–VI	295	57	8	31	4

* The non-typable strains, nearly all virulent ones, were studied by Dr. M Stoppelman.[1]

TABLE 4

Familial Secondary Cases According to Types of Bacilli and Size of Family *

	Families					
		With Multiple			With Multiple	
Type of Bacilli	*Large*	*Cases*	*Per cent*	*Small*	*Cases*	*Per cent*
Gravis or intermedius	130	53	40.8	289	44	15.2
Mitis	79	18	22.8	271	24	8.8
Difference			18.0 + 6.4			6.6 + 2.7

* "Large families" had more than 3 children of 0–15 years; "small families" 3 or less.

tested, but this gave an approximation of the percentage of gravis infections.

When the epidemiology of the various types were studied separately it became obvious that gravis and intermedius types were more aggressive than mitis strains. From 11 patients who, in spite of a negative Schick reaction, got diphtheria, we isolated only strains of the intermedius (3 times) or gravis types (8 times), but never mitis strains. We also noted a healthy carrier of the mitis type who acquired typical gravis diphtheria after contact with gravis carriers.

In a home for boys between 10 and 18 years old a diphtheria epidemic broke out. A culture survey of the 92 inmates showed intermedius and mitis carriers; among the latter both avirulent, and virulent strains. The 32 patients, however, suffered from intermedius diphtheria. None was infected with a mitis strain.

In families, patients infected with gravis and intermedius strains were the origin of more secondary cases than were patients with mitis infections, as is shown in Table 4.

In both large and small families the intermedius and gravis types were found in multiple familial cases nearly twice as often as the mitis type.

SUMMARY

The diphtheria epidemic in Amsterdam seemed to be caused partly by the importation of gravis and intermedius strains from Germany. However, the peak of the epidemic was delayed for two years after first contacts with Germans. The prevalence of mitis type increased after 1941, but was overshadowed by the other types in 1943. Later the mitis type was responsible for nearly half of all cases. Gravis and intermedius strains were more aggressive than the mitis type, but not always the most lethal.

II. Case Fatality Rate; Age Distribution; Schick Reactions

Fatality rates. In the Amsterdam diphtheria epidemic (1942–1947), just described, the case fatality rate was never high, despite the fact that many cases were caused by intermedius and gravis strains. At the height of the epidemic (1943–1946), the fatality rate was lower than in the beginning and in the end (Table 5).

The very poor nutrition of the population at this time seems to have had no influence. In the years of most extreme famine (1944–1945) in all age groups except the infants, lethality was lower than in the year when the epidemic began (1942) when nutrition was still adequate. Even the scarcity of therapeutic serum in those years seems not to have led to a higher lethality.

The high mortality among infants in 1945 coincides with an exceptionally high general infant mortality. The

TABLE 5

Case Fatality Rate of Diphtheria in Amsterdam

Year	Number of Cases	Lethality (Per cent)	Year	Number of Cases	Lethality (Per cent)
1930	642	1.7	1940	99	4.0
1931	482	2.9	1941	169	3.5
1932	617	2.7	1942	1,367	4.9
1933	588	2.0	1943	7,687	3.5
1934	342	2.3	1944	7,932	2.3
1935	132	3.0	1945	5,588	3.5
1936	83	3.6	1946	3,823	3.2
1937	66	3.0	1947	1,265	5.0
1938	128	6.2			
1939	79	1.3			

number of infants suffering from diphtheria was always relatively low. Percentages therefore have less value than in other age groups.

A certain number of false reports of diphtheria were made to deceive the Germans, but the public health nurses who visited the homes kept our own records accurate. This is evident from the fact that in a certain period in 1943, the lethality of all cases in our records (2,019) was 3.1 per cent. In 1,380 of these, diagnosis was confirmed by pure cultures, which had been typed. In this group the lethality was 3.2 per cent, which is practically the same.

The lethality of 487 cases of gravis infection in 1942 was 7.5 per cent. In 1943 it had dropped to 4.6 per cent of 2,325 cases (typed by means of a positive starch fermentation); a difference of 2.9 ± 1.3 per cent. The lethality of 2,114 intermedius and mitis patients together (starch fermentation negative) in 1943 was 1.4 per cent, in 1942 it had been 2.5 per cent of 369 cases; a difference of 1.1 ± 0.8 per cent.

Age distribution. In the course of the epidemic the age distribution of cases changed considerably, showing a shift to older age groups (Tables 6 and 7).

The same phenomenon has been observed in several other parts of Europe (Ipsen in Copenhagen,[2] Walker in Germany,[3]) and has been ascribed to the effect of the immunization of large numbers of children, in contrast with the adults who were not immunized.

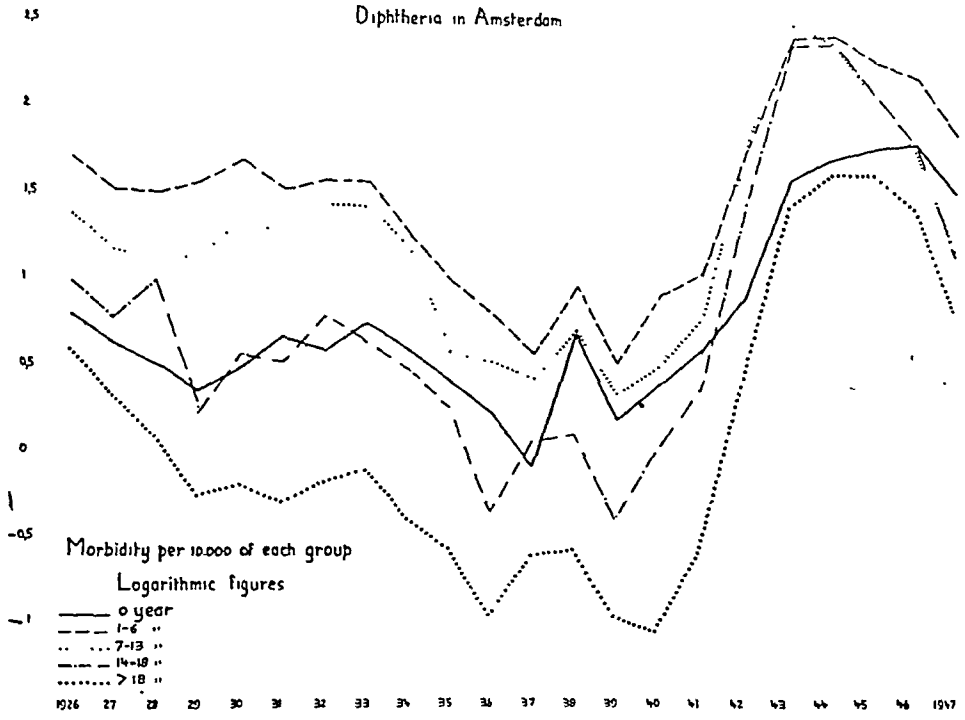
However, other factors also influence age distribution of diphtheria. Percentages give no real insight into this problem because they are interdependent. We therefore have made curves of the logarithms of the morbidity figures in each age group (Figure I). From the beginning of the epidemic there has been an enormous spread of diphtheria bacilli, especially among children. In 1943–1944, morbidity rates reached their peaks in all age groups between 1 and 18 years. Most of those who escaped illness were already immune or became spontane-

TABLE 6

Percentage of Diphtheria Patients in the Various Age Groups

Year	Morbidity by Age Group				
	0	*1–6*	*7–13*	*14–18*	*18*
1940	3.0	57.0	27.0	8.0	5.0
1941	3.0	47.2	30.6	9.7	9.1
1942	0.7	31.4	41.4	14.4	12.1
1943	0.7	24.7	32.7	19.8	22.0
1944	1.5	24.5	24.1	19.2	31.1
1945	1.7	25.2	15.7	13.6	44.0
1946	3.8	30.2	12.1	10.5	43.5
1947	4.7	45.0	9.9	7.0	33.6

FIGURE I



ously immunized. In the following years this resulted in a decline in morbidity rate in the 1–18 years group because there were only a few susceptibles left. This process was most rapid in school children (7–13 years) among whom the spread of diphtheria bacilli was greatest. That the spread of diphtheria bacilli, however, did not immediately diminish, is evident from the continued high morbidity rate among infants, the curve of which does not fall before 1947.

We assume that the spread of diphtheria bacilli among adults was from the beginning less intensive. It was longer, therefore, before the susceptible adults became ill, and spontaneous immunization was much less frequent. In addition, because of the extremely low morbidity in the preceding years, few had become immune, with the result that there was a continued high morbidity rate among adults.

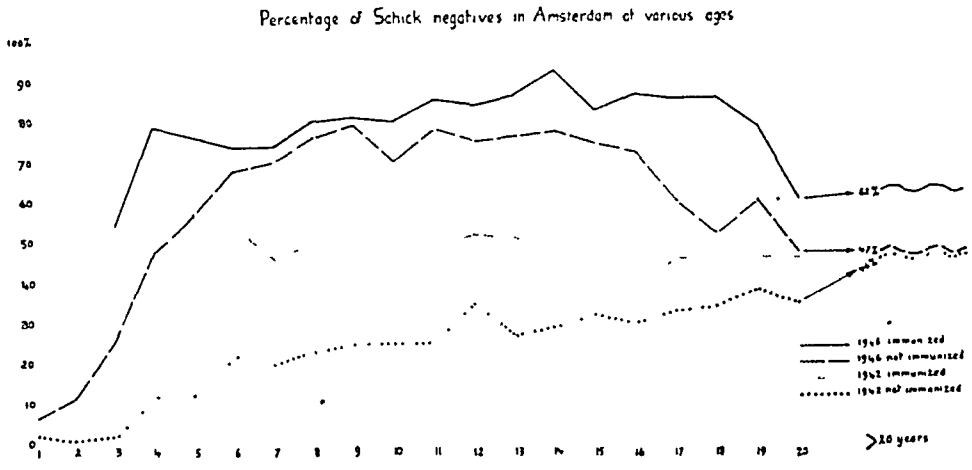
Schick reactions. The Schick rates at the various ages, determined in 1942 and 1946 and which will be discussed later (Figure II), are in accordance with the above surmise. Evidence for the intensive spread of diphtheria

TABLE 7

Case Fatality Rate in Diphtheria in Various Age Groups

Year	Fatality Rates in Age Groups					
	0	*1–6*	*7–13*	*14–18*	*18*	*All Ages*
1942	13.5	9.9	2.7	2.0	2.6	4.9
1943	16.4	6.0	3.4	2.5	1.4	3.5
1944	19.3	4.5	1.7	1.4	1.1	2.3
1945	36.8	7.4	1.6	0.8	1.5	3.5
1946	12.4	6.5	2.0	1.0	1.0	3.2
1947	10.0	7.5	4.0	2.3	1.6	5.0

FIGURE II



bacilli among school children is seen in the high percentage of Schick negative children (6–9 years) who did not suffer from the disease although not immunized (1946).

Immunized children of the same age suffered only slightly less morbidity. We infer that immunization had relatively little influence on the age distribution of diphtheria in this outbreak. This opinion is strengthened by the observation that in a former diphtheria epidemic (1917–1921) before immunization was general, the same shift to older age groups was observed, although in a lesser degree. Likewise, in the scarlatina epidemic (1941–1945) when no immunizations against this disease were performed, the same phenomenon was observed. Then, also, a shift to the older age groups was seen.

Among the adults more women than men suffered from diphtheria. In 1942, in the 14–18 years group, 66 per cent were women; in the group 18 years and older, 72 per cent. In 1943 these figures were 57 and 74 per cent, respectively. In the younger groups there was no difference. This may be due to a more frequent exposure of the adult women because of their more intensive contact with children.

In the beginning of 1942, before the epidemic broke out, a survey of the susceptibility of the Amsterdam population was made by means of the Schick reaction in a group of 5,763 non-immunized and of 2,026 immunized people. In 1946, when the epidemic was subsiding, a new survey was made in 3,815 non-immunized and 2,990 immunized people. The results of these surveys are summarized in Figure II. The nature of these data can be ac-

FIGURE III



counted for by assuming an intensive spread of diphtheria bacilli among the younger age groups and a less frequent exposure to diphtheria bacilli in the older age groups, in which natural immunization is less frequent. In addition, a conversion of the negative Schick reaction into a positive one, especially prominent in the groups less exposed to contamination, must occur. Figure II also shows that even in the years of the famine (1944–1945) immune processes must have been fairly active; otherwise such a high percentage of Schick negatives would not have been attained. However, we are well aware that antibodies alone do not determine the resistance against diphtheria bacilli; numbers of Schick-positive persons become Schick-negative without having suffered from the disease.

The Schick-negative rate, which is the same for both sexes in the youngest groups, showed a difference at school ages. In groups of various economic status the girls of 6–14 and 17 years always had a lower Schick-negative rate than the boys of the same ages. In 1942, of 744 boys (6–17 years old) 30.5 per cent were Schick-negative; of 719 girls, 23.8 per cent; a difference of $6.7 + 2.3$ per cent.

In the preschool ages, figures for both sexes were the same and in those older than 30 years there was a higher percentage of Schick-negative reactors among women than among men.

These observations can be accounted for by a relatively larger Schick conversion rate from positive to negative among females than among males, which in the older age groups, is counterbalanced by the greater contact of women with infected children.

In infants of 0–6 months the Schick reaction is often negative, even when the mother is Schick-positive herself (3 of 11 cases observed). So the skin and mucous membranes seem not to react in the same way at the various ages. Cellular immunity probably plays an important part. This is borne out by the studies of Frobisher, Parsons, Updyke, etc.[5, 6]

We saw in a home for unmarried mothers an infection with a gravis strain imported by one of the mothers who suffered from a very severe faucial diphtheria from Germany. Fourteen infants were infected but none showed the symptoms of typical diphtheria. Several had a purulent discharge from the nose without further symptoms. It may be, therefore, that gravis strains are of variable pathogenicity, but we think it more likely that there is a difference in reactivity between infants and older children.

SUMMARY

The diphtheria case fatality rate during the wartime epidemic in the Netherlands was relatively low, especially when the epidemic was at its peak.

The age distribution of morbidity showed a shift to older age groups, which may be explained to a large extent by a rapid spread of diphtheria bacilli among children, which caused early and high morbidity and spontaneous immunization rates, in contrast to the adults, among whom contact and immunization with diphtheria bacilli were much less and among whom the epidemic therefore lasted longer.

The Schick tests performed on large groups of the population in different years support this view.

III. Infection Rate; Immunization

It was not possible to determine exactly the prevalence of diphtheria bacilli among the healthy population at regular intervals. From 1930 to 1935, between 200 and 800 children, not known to be diphtheria contacts, were

examined annually and showed gradually declining percentages of positives: from 11.4 to 3 per cent. In 1940 we examined 1,119 children of the poorer classes and found only 5 (0.5 per cent) avirulent mitis strains. Thus, immediately before the outbreak of 1941 the percentage of carriers among those children was negligible.

With regard to Schick rates, there were definite differences between children in various economic groups in 1942–1943. Of 347 children of well-to-do families, between 6 and 14 years of age, 11.3 per cent had a negative Schick reaction. Of 794 children of poorer families of the same age, 33 per cent were negative; a difference of 21.7 + 2.4 per cent. Of 255 children 12–14 years of age, from middle class parents, 17.3 per cent were negative; while 40 per cent of 293 children of poor families were negative; a difference of 22.7 + 3.7 per cent. These figures indicate a relationship between Schick status of children and economic status of their parents. This may in turn be directly related to another factor which influences the spread of diphtheria bacilli and thereby the Schick reaction: namely, the number of children in a family who attend a school. There were no significant differences between the groups with two, three, or more children at school. We therefore compared only those families having one child at school (A), with those having more than one child attending school (B) (Table 8-A and B).

In 1946 at the end of the school season there was no longer any difference between groups A and B even in the youngest children (Table 8).

A great difficulty in measuring the rate and extent of spread of diphtheria bacilli by means of Schick test data is lack of knowledge of the frequency of reversion of a negative Schick reaction to a positive. We know that it does happen, but not how often. We saw, for example, that of 105 recovered diphtheria patients, at least 23 later had a positive Schick reaction. It is of interest that in 1942 the curve indicating conversion of positive to negative Schick reactions in school children remained flat after the first rise in the group which enters school. This can only be accounted for by a rather frequent reversion of Schick-negative reaction to positive in spite of the fact that the prevalence of diphtheria bacilli

TABLE 8-A

Percentage of Schick-negative Children in Families with One (A) and with More Children (B) Attending School (1942 at Beginning of the School Year)

Group	Age	Children Tested	Per cent Schick-Neg.	Age	Children Tested	Per cent Schick-Neg.	Age	Children Tested	Per cent Schick-Neg.
A	4	178	7.3	5	167	10.2	4 + 5	345	9
B	4	262	14.1*	5	301	14.3	4 + 5	563	14.2†

* Difference 7.2 ± 2.9%. † Difference 5.2 ± 2.1%.
These figures point to a great influence of the school on the spread of diphtheria bacilli.

TABLE 8-B

Percentage of Schick-negative School Children in Groups A and B in 1946 at the End of the School Year

Group	Age	Immunized Children Tested	Schick-Neg. Per cent	Non-immunized Children Tested	Schick-Neg. Per cent	Age	Immunized Children Tested	Schick-Neg. Per cent	Non-immunized Children Tested	Schick-Neg. Per cent
A	4	198	81.3	212	47	5	311	81.7	257	55
B	4	329	85	305	48	5	414	81	394	56

must have been highest in this age group.

IMMUNIZATION

Immunization against diphtheria has never been compulsory in Amsterdam but it was practised on a fairly large scale by the Municipal Health Service and also by private practitioners; the last in unknown numbers. The population of Amsterdam during the last decade has approximated 800,000, with about 12,000 births annually. From 1930 to 1934 a yearly average of 5,000 children were immunized by the Public Health Service with three injections of toxoid (16 L_f). From 1936 on a stronger toxoid (20 L_f) was used in only two doses of 1 and 1.5 ml. Before the war a yearly average was reached of 5,600 immunizations; from 1940 to 1943, an average of more than 16,000 were immunized annually, with a minimum of 2,700 in 1940 and a maximum of 38,000 in 1943.

In the second half of 1944 and in 1945 all immunizations had to be suspended because of the famine and other difficulties. In 1946 and 1947, immunizations again amounted to 10,000 and 47,500, respectively. However, a certain percentage of these were revaccinations (in 1943 nearly 30 per cent, in 1946 nearly 50 per cent). The results of these campaigns are reflected in the data of the school physician (Dr. Dallmeyer). In 1942–1944, when entering the kindergarten, 34, 58, and 55 per cent, respectively, of the children had been previously immunized against diphtheria. For the primary school these figures were 42, 48, and 53 per cent, respectively. So immunization was not neglected as G. W. Anderson suggested.[7]

The effect of these immunizations upon the course of the epidemic is difficult to determine. It cannot be measured by the data on morbidity in the various age groups (Figure I), which can be accounted for quite well by the difference in spread of diphtheria bacilli in these groups. Since immunizations were performed only on a voluntary basis there was necessarily a certain selection of the immunized, and therefore comparisons lose much of their significance. We have tried to obtain a more reliable measure of the effect of immunization by comparing the number of immunized among the patients and among the healthy contacts of the same families. In these two groups circumstances are comparable (Table 9).

In the older age groups there is practically no difference. We are aware of the fact that in a number of families the importation of the disease may have been prevented by the immunization but we think this does not alter the value of the figures in Table 9.

A curious fact is that when the different types of diphtheria bacilli were taken into consideration there was no difference either. In 1942, of all members of the families in which a gravis case had been diagnosed, 29.4 per cent had been previously immunized; of the gravis patients themselves 28.4 per cent. For the intermedius type these figures were 31.8 per cent and 27.6 per cent,

TABLE 9

Percentages of Immunized Children among Diphtheria Patients and Their Contacts in the Same Families in 1942

	3–5 Years		6–9 Years		10–14 Years	
Children	*Number*	*Per cent Immunized* *	*Number*	*Per cent Immunized*	*Number*	*Per cent Immunized*
Patients	175	15.3	239	27.8	298	28.6
Contacts	190	21.9	305	30.9	510	29

* Among the 3–5 years group there is some difference (6.6 ± 4%) but this is not significant.

respectively; for mitis infections, 23.6 and 23.4 per cent.

The results obtained with the Schick test also gave the impression that the immunizations had not been very satisfactory. For example, in 1942 the immunized group showed only about 50 per cent Schick-negatives (Figure II). Before 1942 the prevalence of diphtheria bacilli among the population must have been extremely low. Evidently spontaneous immunization by means of contact with normally circulating diphtheria bacilli was rare. In the artificially immunized children the stimulus of the toxoid must have been too small to keep the level of antitoxic resistance high, especially in those to whom only two injections of toxoid had been given. In a comparative study in 1942, a rapid decline was seen in the percentage of Schick-negatives one year after immunizations, except among those to whom three injections of toxoid had been given in combination with scarlatina toxin. In these groups after 2 years 92 per cent were still Schick-negative. In those children who had received only two injections of the strong diphtheria toxoid, no more than 41 per cent reacted negatively after 2 years. In previous experiments these vaccines had all been checked by means of the Schick reaction 3 months after immunization and had given good results. It seems, therefore, that a spontaneous reversion of Schick-negative to positive must have been fairly rapid and frequent.

The considerations related above all point to the fact that in the great wartime epidemic of diphtheria in Amsterdam, immunization on a fairly large scale could not prevent the outbreak nor alter its course to a large extent. We think that a better antigen, given in more than two injections, in the whole younger population, might have produced better results, and should be advocated for the future. This is in agreement with Frobisher.[8]

SUMMARY

1. Before the wartime epidemic very few diphtheria bacilli were circulating among the population.

2. During the epidemic the circulation must have been extremely high among children and less among adults which is reflected in the Schick and morbidity curves.

3. When the epidemic began to subside it did not diminish immediately.

4. The school was the place where most infection occurred.

5. The Schick status of children was correlated with the economic status of the parents.

6. Immunization against diphtheria was practised on a fairly large scale but it seems to have had little influence on the course of the epidemic.

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Observations on the Epidemiology of Shigellosis among Institutional Inmates in Puerto Rico*

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BACILLARY dysentery is known to be highly endemic in tropical and subtropical areas. According to Costa Mandry,[1] many references to epidemics of diarrheal disorders are found among the reports of early historians of Puerto Rico. In 1902, Flexner recovered the dysentery bacillus from a soldier who had been stationed on the Island and had presumably acquired the infection at the time. Some years after, González Martínez and Costa Mandry[2] studied several diarrheal outbreaks which proved to be of bacillary origin. In 1941, Watt, Hardy, and DeCapito[3] reported an infection rate of 4 per cent among normal population groups and one of 10 per cent among inmates of the Puerto Rico Psychiatric Hospital.

The present study was conducted in two of the wards of the Puerto Rico Psychiatric Hospital from January, 1946, to January, 1947. The first ward is one where all male admissions to the institution are kept for periods of observation ranging from 1 to 6 weeks. In addition, the ward is used as a sort of infirmary for inmates suffering from concurrent acute diseases. It has a capacity of 75 beds. During the period of study 527 inmates were observed indicating a large turnover of patients.

The other ward, with a capacity of 100 beds, is used for the care of women inmates, mostly inmates who have been confined in the institution for a long time. During the course of this survey, a total of 219 female inmates were studied.

Sanitary conditions are very poor in both wards. Most of the inmates eat their meals either sitting on their bed or on the floor. Many of them defecate on the floor, especially in the evenings. Surprisingly enough, very few flies are seen, yet conditions in general are ideal for person to person transmission and transmission through the contamination of foods.

At weekly intervals, fecal specimens were obtained from inmates in both wards by the rectal swab method described by Hardy, *et al.*[4] These specimens were immediately planted on S.S. agar plates and incubated for 24 hours at 37° C. Suspicious colonies were then transplanted to Krumwiede's triple sugar slants and, after incubation for 24 hours at 37° C., suspicious growths were transplanted to extract broth for later planting into carbohydrate-containing media for study of fermentation and indole reactions. Cultures were finally typed, using the precipitin test described by González and Morales Otero.[5]

* Read before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

TABLE 1

Shigellosis Study — January, 1946, to January, 1947
Puerto Rico Psychiatric Hospital
Results of Examination of Inmates

		Inmates Examined	Observed Infected		Specimens Examined	Positive		Specimens per Inmate
			Number	Percentage		Number	Percentage	
Men's Ward	Inmates admitted before Nov. 1945	304	44	14.5	1,912	58	3.0	6.3
	Inmates admitted after Nov. 1945	223	40	17.9	981	63	6.4	4.4
	All inmates	527	84	15.9	2,893	121	4.2	5.5
Women's Ward	Inmates admitted before Nov. 1945	192	53	27.6	3,531	91	2.6	18.4
	Inmates admitted after Nov. 1945	27	9	33.3	168	18	10.7	6.2
	All inmates	219	62	28.3	3,699	109	2.9	16.9
Both Wards	Inmates admitted before Nov. 1945	496	97	19.6	5,443	149	2.7	13.7
	Inmates admitted after Nov. 1945	250	49	19.6	1,149	81	7.0	4.6
	All inmates	746	146	19.6	6,592	230	3.5	10.2

PREVALENCE OF INFECTION

A total of 6,592 fecal specimens from 746 inmates was collected and examined and 230, or 3.5 per cent, were found positive (Table 1). Of the specimens obtained from the male inmates, 4.2 per cent were positive as compared to 2.9 per cent of those obtained from female inmates.

So as to compare the prevalence of infection among inmates who had been in the institution for a long time with that among inmates who had been recently admitted, the 746 inmates of both wards were divided into two groups; one composed of those admitted before November, 1945, and the other of those inmates admitted after November, 1945. Of the specimens obtained from the second group, 7.0 per cent were positive as compared to only 2.7 per cent in the first group. The higher percentage of positive samples found among the men may be explained by the fact that among them the proportion of inmates admitted after November, 1945, was larger.

Of the total of 746 inmates examined, 146, or 19.6 per cent, were found infected at one time or another: 84 of the 527 men and 62 of the 219 women (15.9 per cent and 28.3 per cent, respectively). It must be borne in mind, however, that female inmates were observed, on the average, for a period three times as long as the male inmates and that 16.9 specimens were examined per each female inmate, as compared to only 5.5 samples per each male. The proportion of inmates admitted before November, 1945, that were infected was 19.6 per cent, the same as for inmates admitted after November, 1945. Again it must be borne in mind that the inmates admitted after November, 1945, were observed for about one-third of the time that obtained for those admitted before November, 1945.

TYPES OF ORGANISMS ISOLATED

The different types of organisms isolated are tabulated in Table 2; 52.8 per cent belonged to the Flexner group, of which the most frequently found were types IV and I–III. Next in frequency of isolation was *Shigella schmitzi* (32.5 per cent), followed by *Shigella alkalescens* with 14.7 per cent. *Shigella*

TABLE 2

Shigellosis Study
Puerto Rico Psychiatric Hospital
Type of Organisms Isolated

	Sh. flexner						*Sh.*	*Sh.*	
	I	*II*	*III*	*IV*	*VI*	*I–III*	*schmitzi*	*alkalescens*	*Total*
Number	9	12	8	55	1	37	75	34	231
Percentage	3.9	5 2	3 5	23.8	0.4	16.0	32.5	*14.7	100.00

shiga and *S. sonne* were never isolated. *S. shiga* has never been reported from Puerto Rico, though *S. sonne* has. In a previous survey,[6] conducted by the writers in this same institution, one of the most prevalent Flexner types of *Shigella* was type VI, or Newcastle. During the present study this organism was isolated on one occasion only.

DURATION OF INFECTION

The number of consecutive weeks during which the various organisms were isolated was recorded. In estimating the average duration of infection from these data, it is assumed that, on the basis of one isolation, infection could have lasted from 1 to 13 days; that when the organism was isolated twice consecutively, the period of infection could have been anywhere from 8 to 20 days, and so on. Duration of infection was thus estimated at from 8 to 23 days for all inmates, 6 to 21 days for inmates admitted before November, 1945, and 12 to 30 days for inmates admitted after November, 1945.

A small number of admissions were followed up from day to day to determine the duration of infection more exactly. Of 75 such admissions, 16 were infected and the average duration of the infection was 15 days. In the entire study the infection of shortest duration was of 1 day and the longest of 51 weeks.

TIME OF INFECTION

Of the 746 inmates studied, 42, or 5.6 per cent, were found positive on the first sample examined. Of the 704 inmates found negative on the first examination only 507 were examined again, and of these, 47, or 9.3 per cent, were found positive on the second to fifth examination. Only 282 of the 460 that were still negative were examined further and 24, or 8.5 per cent, were found positive on the sixth to tenth specimen. On the 11th to 20th additional specimen taken from 172 of the inmates who had remained negative, 11, or 6.4 per cent, were positive.

Inmates admitted after November, 1945, were observed to become infected earlier than those admitted prior to November, 1945. There was not much difference between the two groups in the proportion of infections on the first examination: 6.0 per cent in the former group as compared to 5.6 per cent in the latter. On the second through fifth specimens, however, 13.1 per cent of the newly arrived were observed infected in comparison to only 7.5 per cent of those admitted before November, 1945.

SEASONAL VARIATION

In January, 1946, the percentage of positive samples from inmates in both wards was 6.4, it went down to 3.8 in February and 1.8 in March, staying at a low level through June. In July this rate went up to 4.4, staying at a higher level through December, going down to 2.6 in January, 1947 (Figure 1).

The infection rates for inmates admitted before and after November, 1945, show similar trends, the infection rates for the inmates admitted after November, 1945, being much higher

and the peaks steeper, however. It should be noticed that the rise in July is much slower among the female inmates, rising from 1.2 per cent in June to 1.7 per cent in July to 2.6 per cent in August, reaching a peak of 6.6 per cent in September, while among the male inmates the rate rose from 2.1 per cent in June to a peak of 7.7 per cent in July (Figure 2).

INFLUENCE OF ADMISSIONS ON PREVALENCE OF INFECTION

It has been pointed out that the infection rates among recently admitted inmates were higher, especially during their first weeks of stay in the wards, and that infections among these inmates lasted for a longer period of time. From these observations, it could be expected that an increase or a decrease in the number of new inmates admitted would influence the prevalence of infection in the ward. In Figure 1, in addition to the infection rates per month, the admissions during each month have been plotted. A suggestive similarity in the contours of the curves representing the infection rates and the number of admissions is observed; the peaks and dips in the curves representing the admissions usually precede those in the curve representing the infection rates both for inmates admitted before and after November, 1945.

REINFECTION

In a previous study conducted with these same patients[7] and during the present one, 162 inmates were followed

FIGURE 1

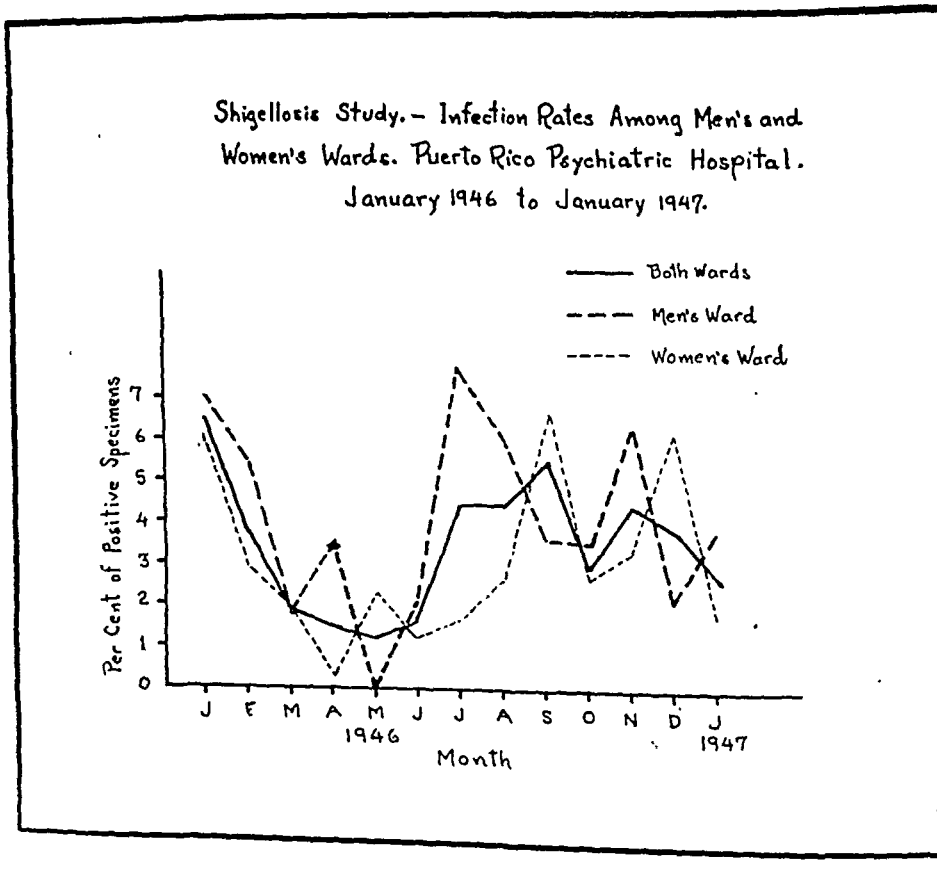
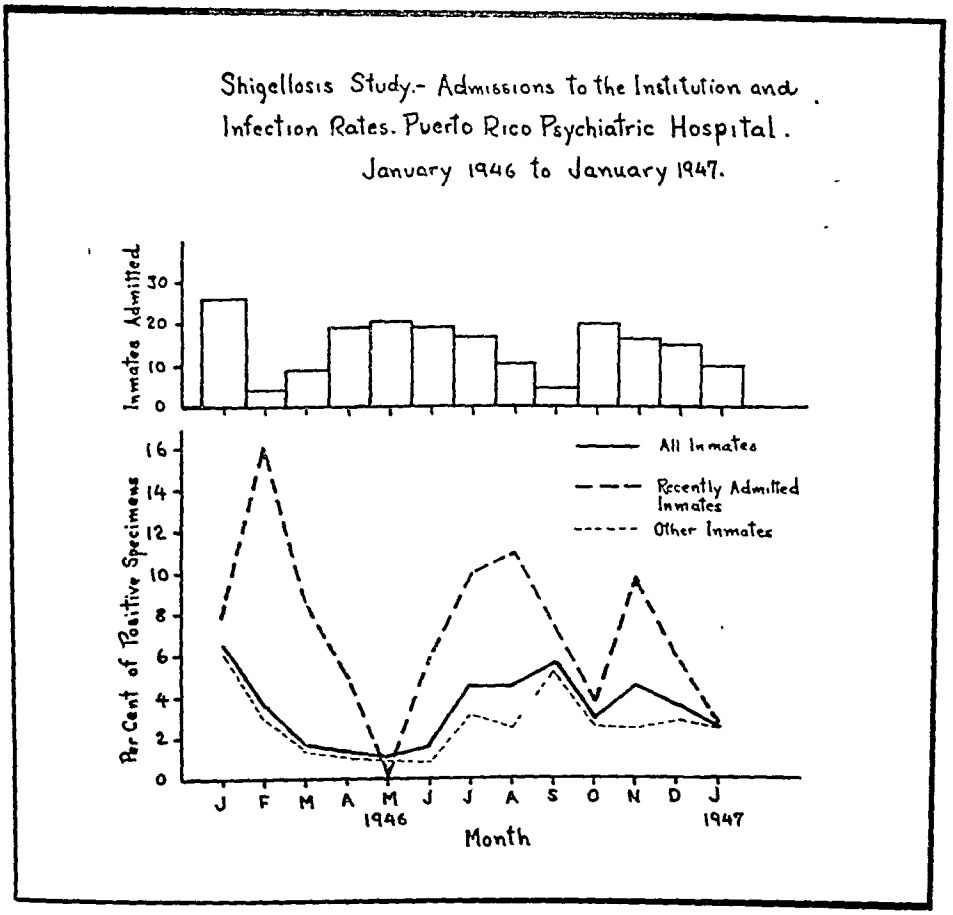


FIGURE 2



up for more than 4 weeks after their first infection and in 45, or 27.8 per cent, reinfections were observed. A reinfection was recognized if a patient who had been negative for 4 or more consecutive weeks after the first infection, became infected again with a different *Shigella* organism; or negative for 12 or more consecutive weeks and again infected with the same type of *Shigella* organism. In Table 3 the individuals classified, according to the type of organisms responsible for the first infection, and showing the organisms found in the reinfection are presented.

Patients originally infected with Flexner type IV organisms were found less frequently reinfected; in fact, in 23 patients studied, only one reinfection was noted. If reinfection rates are an index of the immunity produced by infection with these organisms, it can be said that Flexner type IV organisms seem to confer a longer lasting immunity against the different types of *Shigella* organisms isolated in the present study. Such a finding may be explained, in part, by an observation of González,[8] who found that old cultures of Flexner type IV organisms are agglutinated by antisera prepared against practically all members of the Flexner group.

CLINICAL OBSERVATIONS

Owing to the lack of personnel and to the poor coöperation that can be ex-

TABLE 3

Shigellosis Study
Puerto Rico Psychiatric Hospital
Reinfections

Inmates Originally Infected with	*No.*	*Observed Reinfected with*								*Total*	*Percentage of Reinfection*
		I	*II*	*III*	*IV*	*VI*	*I–III*	*Sch.*	*Alk.*		
Flexner Type I	5	..	1	..	3	..	..	..	1	5	100.0
II	31	1	..	.	1	1	3	1	1	8	25.8
III	1	..	..	..	..	..	..	1	..	1	100.0
IV	23	..	..	..	..	..	..	..	1	1	4.4
VI	26	..	3	..	..	..	2	..	..	5	19.2
I–III	34	1	2	..	1	2	..	2	3	11	32.4
Sh. schmitzi	31	..	2	..	2	..	2	4	..	10	32.3
Sh. alkalescens	11	..	..	..	1	..	..	1	2	4	36.4
Total	162	2	8	0	8	3	7	9	8	45	27.8

pected from psychiatric patients, no detailed clinical observations were made. It is the general impression of the writers, however, that acute clinical attacks of the classical type of dysentery were few, if not rare. Benign diarrheal attacks, associated with infection with *Shigella* organisms were frequent, but the majority of infected inmates followed up did not show any symptoms whatsoever.

SUMMARY AND CONCLUSIONS

1. A study on the prevalence of *Shigella* infections in inmates of two wards of the Puerto Rico Psychiatric Hospital was carried out over a period of 13 months—from January, 1946, to January, 1947.

2. Of 6,592 fecal samples examined, 230, or 3.5 per cent, were positive for *Shigella* organisms. These specimens were obtained from 746 inmates, of which 146, or 19.6 per cent, were found infected. The average number of specimens examined per inmate was 10.2.

3. Infection rates were much higher (7.0 per cent) among recently admitted inmates than among those in the institution for long periods of time (2.7 per cent). These rates were higher among men (4.2 per cent) than among women (2.9 per cent).

4. The organisms isolated belonged to the Flexner, *schmitzi,* and *alkalescens* groups of *Shigella;* the types of organisms isolated tended to be different at different times of the study. No shiga or Sonne organisms were isolated, though the latter has often been reported in Puerto Rico.

5. The average duration of infection was estimated at approximately 1 to 4 weeks; duration of the infection was longer in inmates recently admitted to the institution.

6. While 19.1 per cent of the recently admitted inmates were observed infected during their first 5 weeks of observation, only 13.0 per cent of the other inmates were found to be infected during the first 5 weeks that they were studied.

7. Infection rates were lower during the first half of the year, January through June, the cooler months of the year in Puerto Rico, and higher during the latter half, July through December, the warmer months.

8. Infection rates appeared to be influenced somewhat by the number of admissions to the institution, rising soon after a large number of admissions and decreasing when the number of admissions decreased.

9. Of 162 inmates who were infected and followed up for 4 or more weeks after they had lost their infection, 27.8 per cent were reinfected. Those originally infected with the Flexner type IV organism showed less reinfections.

10. It appears from these observations that inmates entering the Puerto Rico Psychiatric Hospital from among the general population, where the prevalence of shigellosis is lower, have less resistance to infection with these organisms than inmates who have been in the institution for long periods of time. This lesser resistance is manifested by higher infection rates after they are admitted to the institution and by a longer duration of infection.

11. Although meager clinical observations were made, it is the impression of the writers that infection with *Shigella* organisms was accompanied by very mild if any symptoms. It was our impression that for the most part infected inmates were in a carrier state.

12. It is evident from this study that infection with *Shigella* organisms does not protect for long against subsequent infections. It may be that frequent infections protect against clinical attacks of classical bacillary dysentery.

NOTE: We are indebted to the members of the Staff of the Puerto Rico Psychiatric Hospital for the fine coöperation and assistance given us at all times.

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Educational Qualifications of Community Health Educators

"HEALTH EDUCATORS: High standards for professional health educators are set forth in the latest report of the Committee on Professional Education (American Public Health Association). The report, approved by the A.P.H.A. Governing Council in November, outlines seven major areas of knowledge and competence as desirable in health educational personnel.

"They are: (1) *Basic Cultural Education*—use of the English language, general psychology. U. S. and world history; (2) *Basic Sciences*—some knowledge of chemistry, bacteriology, physiology, physics and biology; (3) *Education and Educational Psychology;* (4) *Social Sciences*—background in general sociology, political economy and cultural anthropology; (5) *Public Health Training*—knowledge of principles of organization and administration of public health, methods of communicable disease control, public health statistics; (6) *Public Administration*—training in community organization, background in social work agencies; (7) *Special Skills in Health Education*—public speaking, writing and edition; all other skills associated with publicity work."

Channels, Vol. 1. No. 8 (Dec. 15), 1948.

Arctic Sanitation*

W. A. HARDENBERGH, F.A.P.H.A.

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STRICTLY speaking, the Arctic comprises that northern section of the world where the ground is permanently frozen, even though the top layer of soil may thaw during a brief summer period. The southern limit of this permanently frozen ground, which is called permafrost, coincides generally with the northern limit of tree growth—the tree line. However, for the purposes of this paper, the Arctic will be considered as the entire northern area where extreme cold persists throughout a major portion of the year.

Occasional low temperatures alone do not indicate arctic conditions. Records show that as low temperatures have occurred in the continental United States as in the extreme polar regions; but such low temperatures do not persist outside of the Arctic. Wind; lack of forest growth; continued very low temperatures; a short summer; and permanently frozen ground are characteristic of the Arctic.

The general problems of cold weather sanitation are not insurmountable in themselves, but the difficulties that exist are heightened by the combination of the military problems and those resulting from the hostility of the climate; the inefficiency of men working in extreme cold; the difficulty of merely sustaining life; the great distances; and the necessity for shelter. In a broad way, we may say that the problems of the Arctic are much the reverse of those we faced in the tropics. There we could not completely protect the health of small groups; in the Arctic, the difficult problem will be the supply and protection of large groups. Fortunately, there are no rats and no cockroaches in the Arctic, though there are mosquitoes and many varieties of gnats and biting insects.

Local food supplies for large bodies of men are, to all intents and purposes, nonexistent. Shelter is also practically nonexistent, and in time of storm is essential. Snow houses, or igloos, can be constructed for small groups, but not readily for an army. Travel and transportation over land are possible in the winter but not in the summer. Snowshoes or skis are necessary for winter travel by individuals. Tracked or crawler vehicles are the only kind that can move off the probably ten miles of hard surfaced roads in the far north. Sleds can be hauled by these vehicles along previously selected trails only during the winter. Fuel, food, and shelter must be taken along; they do not exist in the Arctic.

WATER SUPPLY

For 7 or 8 months each year, all lakes and rivers are covered with 6 ft. or more of ice. Small streams are frozen solid. Since the ground also is frozen, there are many problems of water supply.

Fixed supplies must be drawn from under the ice cover. This means that the pond or reservoir or other source must be of sufficient capacity to supply all needs for about 8 months, assuming (1) that the top 6 or 8 ft. will freeze,

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and (2) that there will be no winter inflow. Since many of the smaller arctic lakes and ponds are relatively shallow, the contours between which the water supply can be drawn may need to be determined accurately.

The amount of water required by fixed posts has not been determined. Estimates of needs range from 5 to 70 g.p.c.d. The former is no doubt inadequate for any normal conditions; design should probably aim at the latter. Water is generally quite plentiful in the Arctic. Though the rainfall is small, it cannot soak into the permanently frozen ground and so stands in pools or runs off.

Water supplies will usually come from surface sources. As yet we do not know enough about arctic ground waters to make definite statements regarding them; but there have been difficulties in sinking and maintaining wells through permafrost and in finding adequate supplies of good quality ground water.

The quality of arctic ground waters appears to be good. It is generally clear and without objectionable characteristics. We need to know more about its chlorine demand and other factors in treatment.

Pumping stations must be designed and constructed with due regard to permafrost conditions. Steam-operated pumps may be desirable as power must be generated locally with fuel, and the steam can be used to heat the water. As drawn from lakes in the winter, water temperature is about 33° F. It is normal practice to raise the temperature to 40° to 75° F. at the pump.

Distribution and storage offer many problems. Storage tanks are frequently housed to protect them from the cold. The force line from the pumping station to the storage reservoir must be insulated. Circulation is usually provided by a small bleed-off main which takes water from the storage tank and returns it to the pump sump. Fully satisfactory protective methods to prevent pipe lines from freezing have not been developed. The "utilidor" system, in which the water, sewer, and steam lines are carried in a single concrete box, is costly and has sanitary objections. Service connections also need protection. It must be remembered that all of these lines must be located in ground that is solidly frozen during much or even all of the year.

In the field, in the winter, water must be procured by melting snow or ice, preferably the latter, since much more water is obtained and more easily. To supply the necessary amount of water, melting devices and fuel must be provided; and to transport the water, insulated containers are necessary. Equipment to meet the needs of arctic field water supply is being developed and tested but, as yet, there are no standard methods or devices applicable to large scale, universal field use. Insulated water carts, simple snow melting devices, and perhaps insulated canteens may be needed.

SEWAGE AND WASTE

The need for adequate waste disposal, or even of any method of disposal in the field, aside from tossing the wastes off the trail has been questioned. This viewpoint seems wholly erroneous. It is true that the Arctic is a vast region; however there is no assurance that each and every group or party will follow a different route. In fact, the exact opposite is most likely. If the idea gets into the minds of our line officers that sanitation is unnecessary in cold areas, it will take both epidemics and time and trouble to change some of them; the rest will never change. We cannot foresee what our needs or our activities will be in the Arctic, so we should not abandon time-tested practices in sanitation, certainly not until we know more of the situation.

In fixed posts, water-carried sewage disposal is desirable, though indoor chemical toilets have been used with some degree of satisfaction. Sewers are subject to the same problem of freezing as are water mains. They should probably be insulated and a small steam line laid alongside or under the pipe. Treatment plants will probably not be needed, since main posts will probably be on deep water and disposal by dilution can be employed. If treatment should be necessary, heat will probably have to be provided and the plant structures must be carefully designed for permafrost conditions.

Field disposal of sewage is an unsolved problem as yet. Pits are difficult or impossible to dig in frozen ground. Chemical toilets of the pail type seem promising. Disposable linings for these toilets are being tried, but getting rid of the lining and contents is a problem. Perhaps a chemical can be developed which, when the contents thaw in the summer, will provide effective sterilization. Mere tossing aside of these used containers, especially when the number of men involved is considerable, is certainly open to serious question. Protecting the men from the weather while using toilet facilities is necessary, and as yet no standard practice has been developed.

INSECT CONTROL

There are many mosquitoes during the short arctic summer; also various flies and other biting insects. Mosquito breeding starts as soon as the snow begins to melt, since the eggs are laid the previous fall. While there are probably no mosquito-borne diseases in the Arctic, the problem of comfort is an important one. Area control with DDT and other compounds has been tried. In general, because insects from outside the sprayed area move in very quickly, relief is of short duration, even when a considerable area is treated. Work has been done on the application of insecticides to the snow before melting begins, and results have been promising.

FOOD, SHELTER, TRANSPORTATION, AND CLOTHING

In field service, away from fixed posts, consideration must be given to such other factors as food, shelter, transportation, and clothing. Developments in shelter and transportation may influence, to a marked extent, the details of sanitation practices. If, for instance, overland transportation is developed beyond present ideas, sanitation problems might not be too different from those that we now have in the northern part of this country. We would have weather that averages colder and stays colder longer, but there would probably not be as much snow to contend with. Distances would be greater, especially distances from our main supply bases. Forest cover, and with it local fuel and shelter resources, would be lacking. Summer travel over land would be impossible and summers would be much shorter. But with all of these differences, our own north country would form a good basis from which to start considerations of the problems of arctic sanitation.

Nutritional Reconditioning of Children*

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TO extend knowledge of the nutritional status of Michigan children, the Research Laboratory of the Children's Fund of Michigan studied 392 boys and girls, from 3 to 18 years old, while they were being supervised by five widely separated rural and urban child caring agencies in the state.[1-8] The investigation was made possible by the development of accurate microtechniques—methods using small samples—for chemical analyses of blood. These procedures make practical studies of groups of individuals while they are living in their usual environments. The ease with which the small blood samples are collected, with minimal requirements for equipment and personnel at point of collection and the relative simplicity of shipping samples to a central laboratory for analysis make the procedures specially suitable to obtaining information of value in the public health field.

Finger punctures provided fasting blood samples approximately 0.3 ml. in volume, an amount adequate for determination of hemoglobin, serum protein, serum alkaline phosphatase, vitamin A, carotene, and vitamin C by the Lowry and Bessey micromethods.[2] The results of the studies of children attending Bay Cliff Health Camp located on the shore of Lake Superior in the Upper Peninsula of Michigan demonstrate the possibilities of nutritional reconditioning.

During six weeks each summer the Bay Cliff Health Camp provides for underprivileged children diets superior in quantity and quality, excellent environment, and activities planned for their enjoyment by an experienced staff. The children in the camp had: (1) cardiac involvement, (2) speech and hearing defects; (3) orthopedic ailments principally residual from poliomyelitis, but including a few cases of spasticity and other debilitating conditions; and (4) general malnutrition or undernutrition common to underprivileged children. Many of the children were known to have existed for years in an environment that did not provide even the minimal amounts of nutriments necessary for satisfactory nutritional status. With some, chronic misfeeding and underfeeding dated from birth, and their bodies may have become conditioned to inadequate diets. Others had deficiencies secondary to physical and emotional handicaps which possibly interfered with the ingestion, absorption, or utilization of essential nutriments.

Weight gain is often taken as the criterion of satisfactory growth in children. Of the 101 children studied at Bay Cliff Health Camp 73 had not attained the weights expected for their respective ages, according to the standards of Meredith[9] and Boynton,[10] when they were admitted to camp. Of these, 53 weighed 80–100 per cent of their standards, 15 weighed 70–80 per cent of their standards, and 5 weighed less than 70 per cent of the normal expectation. During the camp period average body weight gains ranged from 5 to

* Presented at a Joint Session of the American School Health Association and the Food and Nutrition Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

1,191 gm. per week. For the majority of the children in the group weight gain alone would be indicative of the beneficial effects of the camp experience. However, chemical methods make possible more objective determinations of physiological status, coincident with clinical examinations and evaluation of the results of a changed environment.

Serum alkaline phosphatase—Since interest developed in serum alkaline phosphatase as an indicator of rickets, it has continually become more evident that many factors are operative in determining the level of the enzyme in blood serum. Also, serum alkaline phosphatase values can be interpreted only with recognition of the numerous physiological processes which influence its concentration in the blood stream. In recent surveys of the nutritional status of population groups,[11, 12] the measurement has been employed, primarily, for detection of vitamin D deficiency.

The children at Bay Cliff Health Camp did not show any changes in serum alkaline phosphatase levels during the six weeks of improved environmental and dietary regimen, nor was there any indication that any of the levels were abnormal when age and sex were considered.[8]

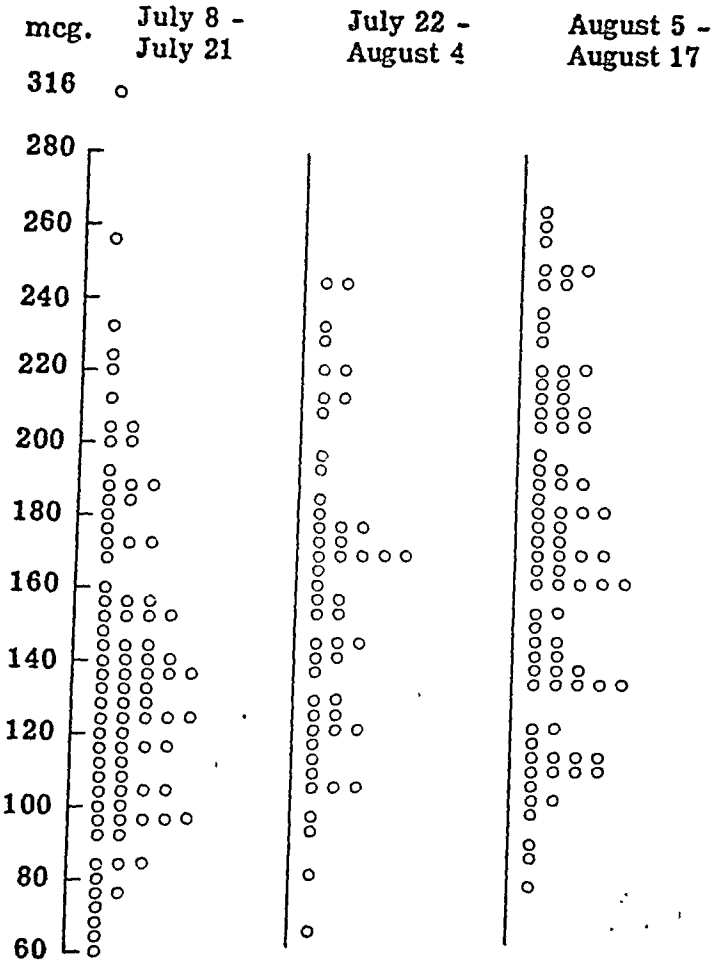
Serum vitamin A and carotenoids—An interpretation of data on serum concentrations of vitamin A and carotenoids as they relate to nutritional status is complicated. It is known that blood carotenoids drop rapidly over a period of one week when a carotene-free and vitamin A-free diet is given,[13–15] but many months of a deficient diet are required to depress appreciably the serum vitamin A level. Malnourishment is frequently associated with low serum vitamin A levels,[16, 17] and Yarbrough and Dann[18] have demonstrated lower average vitamin A levels in the blood of low income groups than among high income groups. On the other hand, not all persons showing commonly accepted clinical signs of vitamin A deficiency exhibit lowered blood levels of this substance, and dark adaptation measurements may show poor correlation to blood levels of vitamin A.[19, 20]

The vitamin A problem is complicated by the fact that certain carotenoid pigments in food are converted to vitamin A in the body and serve as sources of additional amounts of this indispensable material. The human body has the capacity of storing vitamin A, particularly in the liver. For this reason, restricted intake of vitamin A will not produce vitamin A deficiency as rapidly as ascorbic acid limitation will cause scurvy, and blood levels of vitamin A will not respond as rapidly to lowered dietary intake of the vitamin as do the blood levels of vitamin C when intake is restricted.

Dietary supplies of vitamin A may vary significantly with season. Butter —one of the few rich natural sources of preformed vitamin A in a diet—has been shown[21] to have significantly lower vitamin A potency in the winter months when green pasturage is not available. More important than vitamin A itself in satisfying needs for this nutriment are the carotenoid pigments of green and yellow vegetables and fruits. Moore[22] has pointed out that these, being the less expensive sources of vitamin A, are the most significant ones in the diet. It is difficult to assess the vitamin A value which the mixed carotenes of any diet may contribute. Of the several carotenes, some are well and extensively converted into vitamin A when they enter the body; others are but poorly converted, if at all.[23] Recently, Koehn[24] obtained results with rats which support the theory of Karrer that the conversion of beta-carotene to vitamin A, *in vivo,* is by fission of the molecule to yield two molecules of vitamin A.

The blood serum levels of carotenoids for the children at Bay Cliff Health

FIGURE 1



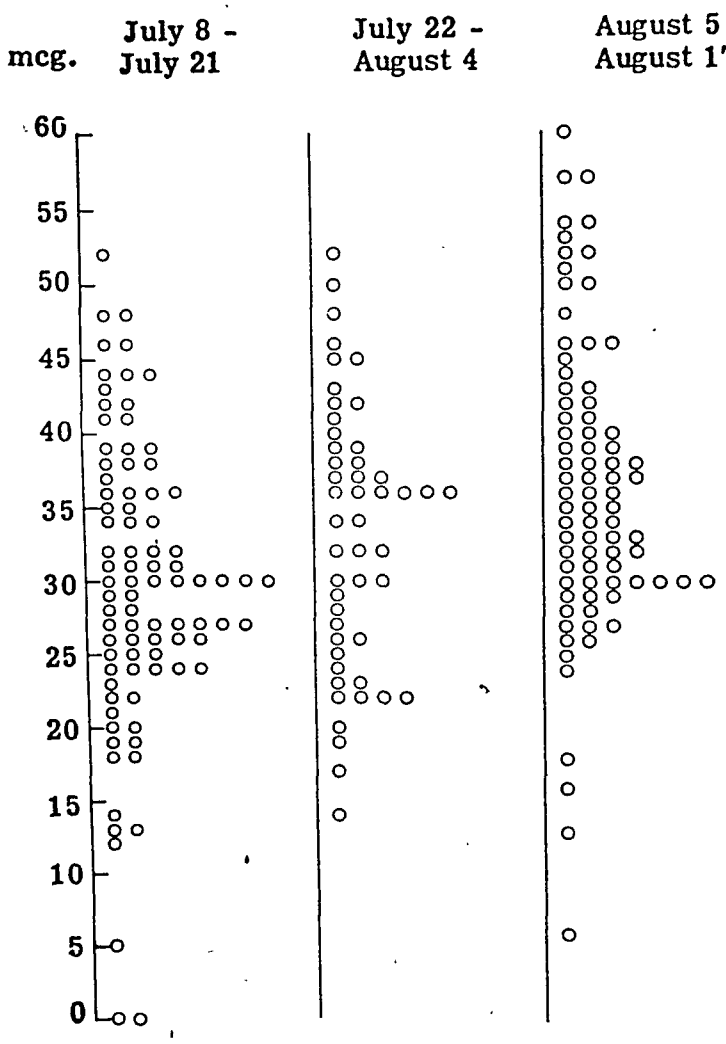
Fasting serum carotenoids levels of children at Bay Cliff Health Camp

Camp are shown in Figure 1. The values are distributed among three intervals: those from blood collected during the first and second weeks of camp, those collected during the third and fourth weeks, and those after the children had been in camp for four weeks.

That blood serum levels of carotenoids may rise fairly rapidly under favorable circumstances is demonstrated by the marked increases shown by the children during the six weeks in which their environment and diet were excellent and included plentiful amounts of milk, fruit, and fresh green and yellow vegetables. The average level of serum carotenoids early in the camp period was 137 μg., and at the end, 168 μg. per 100 ml. Initially, only 17 per cent of the group had serum carotenoid levels above 160 μg. per 100 ml., but after four to five weeks 55 per cent had risen to that level. The ample levels of serum carotenoids imply that this material was available in the diet in substantial amounts.

Values for vitamin A are plotted similarly in Figure 2. Among the children, 42 per cent had initial levels of serum vitamin A below 30 micrograms

FIGURE 2



Fasting serum vitamin A levels of children a Bay Cliff Health Camp

per 100 ml., but only 27 per cent of the final values were at or below this level. The greatest increases in blood vitamin A occurred in the children whose initial levels were lowest, while those subjects with good initial levels of vitamin A (above 30 μg.) per 100 ml. showed smaller increases and in some instances a reduction. The shift of blood vitamin A levels, while not as great, was similar to the change in carotenoid values.

Hemoglobin—Of all the biochemical measures available for assessing nutritional condition, hemoglobin concentration in the blood has been used most frequently. The occurrence of iron as a component of the hemoglobin molecule and the occurrence of iron-deficient anemias when iron and copper intakes are restricted has led to the use of hemoglobin determinations to assess adequacy of iron allowance. However, many dietary factors, such as other minerals, amino acids, and vitamins, are required simultaneously to maintain normal function of the hematopoietic

system.[7] Thus, hemoglobin concentration is a valuable indicator of adequate nutrition with respect to many, rather than to a single nutriment and is a most useful method of assessing dietary adequacy of groups, despite the fact that individual cases of anemia may often be the result of some pathological process unrelated to a deficiency in intake.

Study of healthy individuals has revealed that a wide normal range of hemoglobin levels exists and that establishing a definite level below which a value can be considered pathologic is virtually impossible.[25-29] Various standards of normalcy have been used by workers who have determined hemoglobin in assessing nutritional state. Guest's study of 600 children[30] indicates that 12.5 gm. of hemoglobin per 100 ml. of blood is a desirable level for children eighteen months old, and from all reports[31-33] it seems that for older children, values below 12.5 gm. may justifiably be considered unsatisfactory.

The distribution of the children according to level of fasting blood hemoglobin showed averages for all children ranging from 11.0 to 17.5 gm. per 100 ml., averaging 13.4 gm. A few unusually high values were found in children who had cardiac involvement. No serious degree of anemia existed in the subjects. However, 32 per cent fell below 13.0 gm. per 100 ml., and 20 per cent of the subjects had less than 12.5 gm. of hemoglobin per 100 ml. of blood. Only 3 per cent were below 12.0 gm. per 100 ml.

The distribution of values was consistent with the observations of Mugrage and Andresen,[28, 34] who found a similar range in children from birth to 21 years and of Milam and Muench[35] in studies of North Carolina populations, but in this investigation there were fewer cases of low hemoglobin than the latter workers observed. Ross and Summerfeldt[36] reported somewhat lower average values for children, in a rural orphanage (10.4 gm.), in a city institution (11.8 gm.), of middle class (12.0 gm.), and privileged children (13.0 gm.). In the absence of other evidence, the slightly reduced levels of hemoglobin existing in a few of our subjects cannot be assumed to have had their origin in dietary inadequacies. Thus, the children had representative hemoglobin levels upon entrance and did not show the effect of nutritional conditioning which was found in their levels of fasting blood serum vitamin C[4] and vitamin A.[6] Perhaps a longer exposure to improved diet would also have demonstrated a rise in hemoglobin levels.

A special study of the iron intake of two 8 and two 12 year old children demonstrated the importance of the method of determination in the evaluation of hemoglobin data. Analyses of foods exactly representing those eaten showed intakes of 15 to 21 mg. of iron per day. However, calculation with values from the literature indicated intakes of only 10 to 15 mg. per day. The fasting hemoglobin levels of the four children ranged from 12.7 to 14.8 gm. per 100 ml. of blood. This discrepancy between the calculated and analyzed values for the iron content of foods may be attributable to a location in an iron ore region. The iron content of food grown in such soil might be several times that of foods grown in another area. The absence of low hemoglobin values for the children at Bay Cliff Health Camp may well have been the result of geographic environment which assured adequate iron intakes.

Serum protein—The use of total serum protein concentration measurements in surveys of populations, with and without fractionation into component albumin and globulins, has been widespread.[12, 37-39] The majority of workers agree with the limits of normal blood serum protein concentration set by Bruckman, D'Esopo, and Peters,[40]

6.5 to 8.4 gm. per 100 ml., and that concentrations of serum protein below 6.0 gm. per 100 ml., except in infants, are indicative of pathology.

For the children who attended Bay Cliff Health Camp the means were similar for the initial and final determinations, but seven individuals showed concentrations below 6.6 gm. initially, whereas only two showed less than that concentration of serum protein near the end of the camp period.

Serum vitamin C—Serum vitamin C levels tend to reflect recent dietary intake[41–43]; therefore, by taking samples following night fasts of 12 hours or more, effects of recent intakes of vitamin C-rich foods are minimized, and the levels observed become a more valid representation of nutritional condition. Although doubt may exist when the vitamin C content of a single blood sample is taken as the criterion of vitamin C saturation in an individual, the overall picture obtained in a survey is of greater reliability in revealing the nutritional status of a large group.

In using blood levels of vitamins as indices of nutritional status, the greatest difficulties lie in our inadequate knowledge of the concentrations which define the zones of nutritional adequacy or inadequacy. However, a great amount of research has provided more definite knowledge of the desirable blood levels of this constituent than is available for any of the other vitamins. Gyorgy[44] summarized current opinion in stating that "the normal level for ascorbic acid in human blood plasma is 0.7 mg. per 100 ml." He reported that lower blood levels may be interpreted as indicative of insufficient intake or increased body demand, as in infection, an actual deficiency, or tissue under-saturation. Youmans[45] states that normal concentrations of vitamin C range from 0.7 mg. per 100 ml. of serum upward, with 1.2 mg. per 100 ml. or better being commonly observed in well nourished subjects. He considers values in the range of 0.4 to 0.7 mg. per 100 ml. as constituting the borderline region and values below 0.5 or 0.4 mg. to be definitely deficient. Similar opinions are expressed by Farmer[46] and others,[12, 29] although Farmer warned that the finding of a level of 0.0 to 0.4 mg. per 100 ml. need not be interpreted in any individual as being indicative of severe deficiency unless the low level is found in repeated examinations.

A striking illustration of the effect of dietary pattern on blood serum vitamin C levels was found in a child caring agency where children live in groups of nine to twelve in individual cottages. Evening meals are served in a common dining room but the house mother in each cottage is responsible for the planning and preparation of two meals each day and variations in dietary pattern might be expected.

In cottage A, breakfast menus generally included canned orange concentrate and the luncheon menu often provided fruit salads. In contrast, the children in cottage B were served orange concentrate infrequently because the house mother, who had no training in

FIGURE 3

Fasting Blood Serum Vitamin C Levels for Two Groups of 10 Children Each Living in an Individual Cottage, on Three Successive Days

Values in milligrams per 100 milliliters

Day	Cottage A		Cottage B	
	Mean	Range	Mean	Range
1	1.13	0.92–1.33	0.12	0.02–0.28
2	1.06	0.54–1.52	0.17	0.00–0.34
3	1.05	0.66–1.51	0.12	0.05–0.23

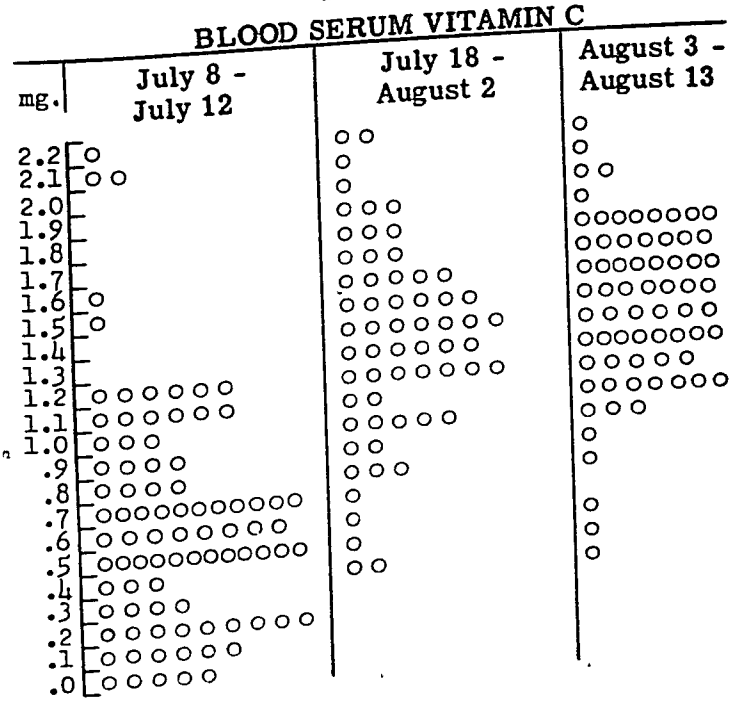
nutrition or dietetics, believed high intakes of milk were all-important for children and encouraged consumption of it in preference to citrus fruit or juice.

Blood samples were collected three successive days from each of the 10 children in each cottage. The mean level of blood serum vitamin C (Figure 3) for each day was considerably higher for the occupants of cottage A than for those in cottage B. The ranges for the children in cottage A also were much higher than those for the children in cottage B. The values for vitamin C in the serum of the group of children in cottage B might be questioned as representative of well nourished children.

Figure 4 portrays the changes in fasting blood serum vitamin C levels for those children from whom samples were obtained two or more times at Bay Cliff Health Camp. The initial levels show that the majority of the children (59 of 88) had less than 0.8 mg. of vitamin C per 100 ml. of blood serum; values for 27 were indicative of deficiency (0.0 to 0.5 mg. per 100 ml.); and values for 32 indicated a prescorbutic state (0.5 to 0.8 mg. per 100 ml.). Only 21 had unquestionable levels, ranging from 1.0 to 2.3 mg. vitamin C per 100 ml. of serum, and only 29 had concentrations of vitamin C considered adequate to sustain health and provide a margin of safety for rapidly growing children.[4] Since the blood samples for the initial determinations were obtained after the children had been in camp for several days and the response to increased intakes of vitamin C is known to be extremely rapid, it is likely that many of the children had even lower levels of the vitamin in their blood serum prior to admission to the camp.

The vitamin C studies in the middle and final weeks of camp provided a striking example of progressive improve-

FIGURE 4



Fasting serum vitamin C levels of children at Bay Cliff Health Camp

ment and stabilization in the nutritional status of children in response to improved dietary environment. After three to four weeks at camp (Figure 4), determinations for 61 children showed none with a serum vitamin C value below 0.4 mg.; 51 with values of 1.0 mg. or more; and 10 below 1.0 mg., of which only 5 were below 0.8 mg. per 100 ml. Determinations during the final two weeks at camp showed 64 children to have levels of blood serum vitamin C at or above 1.0 mg. per 100 ml.; 2 with levels of 0.8 and 0.9 mg.; and 3 with 0.4 to 0.6 mg. per 100 ml.

Weight gain is not as reliable a criterion of satisfactory growth conditions for the growth and development of children as is a thorough evaluation of nutritional status, for even with food intake sufficient to allay hunger and produce weight gain, the diet may not contain essential substances in amounts sufficient to maintain in the blood and body tissues the levels requisite to health, much less provide reserves for periods of stress. If the body has become conditioned to an inadequate diet, weeks may be required for nutritional conditioning, with the accompanying attainment of the physiological adjustment of body tissues and fluids necessary for nutritional stability and normal growth. Although a number of the children in the present study arrived at camp with supplies of commercial vitamin products (unused while there), the data indicate that either they had not been taking the synthetic products for sufficient lengths of time or that the substitutes for proper food were not adequate. For the children studied at Bay Cliff Health Camp the results of determinations of vitamin C in their blood serum provide a notable illustration of beneficial physiological effects of proper food and healthful environment, as well as of the rapidity with which nutritional conditioning may be achieved and nutritional stability attained.

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American Cancer Society Raises Record Sum

According to a recent report of the American Cancer Society, New York City, the proceeds of the 1948 campaign stand at $13,087,178, which is the largest sum ever raised by the American Cancer Society for its program, which includes educational campaigns for early recognition, the development of treatment facilities, and research.

Welfare Measures and Their Effect upon the Family*

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MY experience in welfare work goes back to the first decade of the century. In New York City at that time there was little or no welfare work for families in their own homes at public tax-supported expense. There was no relief for families in their homes, except a trickle of relief afforded by voluntary agencies. There was no workmen's compensation to prevent the breakdown of family life through accidents. There was no unemployment insurance and no old age security through so-called insurance.

The outstanding fact was that families would break up. Children were herded into institutions for dependent children. The aged without means of support went to almshouses and the chronic sick to chronic hospitals. Most families in distress economically through death, illness, accident, protracted unemployment, or other family economic distress, struggled along preferring to remain in distress even at the expense of increasing the number of deaths, the volume of illness, undernourishment, and gradual deterioration, rather than accept proffered assistance of breaking up the family through institutionalizing all but the able-bodied members capable of self-support.

The results were disastrous. Confronted with this threat to the very foundations of family and social life, social morality and social conscience awakened and began to attack the problem. First came workmen's compensation. This was followed during the next two decades by legislation providing allowances for children in widows' families, by old age allowances and the gradual extension of other forms of relief to the blind, the sick, etc.

Then came the depression of the third decade, with its resultant breaking down of the traditional restraints of the old poor law and the opening of the gates to implementing modern concepts of relief. It went further and moved toward the prevention of poverty through social security provisions for unemployment and old age. Meantime the social awakening was leading to more adequate compensation for work performed and the great improvement that this brought to family life through an improved standard of living.

All of this meant an extraordinary change in social life. No longer do we see family life in any significant amount broken up through the disaster of death, sickness, accident, unemployment, and other misfortunes to the economic stability of family life. A very considerable percentage of families have been removed completely from that marginal group which were plunged into poverty as soon as adverse social and economic circumstances overtook them. Social services in a more limited sense

* Discussion presented at the Round Table on The Family as the Unit of Health, in connection with the Twenty-fifth Annual Conference of the Milbank Memorial Fund, November 17–18, 1948. The proceedings of the Round Table will be published in a single volume by the Milbank Memorial Fund.

of the so-called public and voluntary welfare agencies are freed from giving attention to this large group of families. This has made possible a much more adequate service to the more limited number of families coming to them for care. Social security approaches to these problems, supplemented by the combination of voluntary and publicly supported social services, have not only made the break up of families unnecessary, but have in addition reduced the volume of deaths, sickness, and deterioration in the physical mental, and moral life of families. Children in disadvantaged families are now better cared for, better fed, better educated, have less sickness, and fewer of them die.

We are now at the point where we are raising the question of where we should go from here. We are observing with much interest the experience of our neighbor, Canada, in granting allowances to children of specified ages irrespective of the economic status of the family, thus helping to tide over that most difficult period in the economics of family life when there are additional members in the family to be supported from the earnings of the breadwinner.

We are observing the interesting experiment in Manitoba and Saskatchewan, Canada, of extending home and hospital medical care to families through special and general revenues of the government without direct charges to them. We are students of the accumulating experience of Great Britain with their National Health Service Act which went into effect on July 5, 1948. We are fortunate in having this experience and that of other countries which have extended security and welfare provisions further than we have in New York to draw upon before making further modifications in our own program.

It will be seen from this silhouette of trends in the last few decades that welfare measures have modified social life and the functions of welfare services enormously. Social welfare and public health have become politically important. All parties and all political candidates in their platforms and definite programs make reference to further improvements in welfare and health services. Good welfare and health programs have become good politics. And the impact of this upon family life has been enormous.

These significant developments leave us with the question of how far and how rapidly is it wise to go in extending present welfare services. This is now the subject of active debate. How far can the State go in extending welfare work and the so-called security to all families without weakening human efforts to better themselves? How far is it possible to go before diminishing returns appear in national productivity and national income and the leveling off or reduction of the average standard of living? These are some of the unanswered questions which confront us as we study next possible steps in the development of welfare work for families.

A Pattern of Local Services in the Saskatchewan Health Program*

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IT is my privelege to give you a brief account of a local unit of health administration in Saskatchewan, a unit with an advanced and in many respects unique program—the Swift Current Health Region. There is no other unit of its kind in North America, in which all residents are eligible, on a tax-supported basis, for basic public health services, virtually complete medical services, hospitalization, and dental care for children. No one would claim that this program is ideal in organizational structure or in services provided, but it must command our attention as a courageous pioneering effort with spreading influence.

As an outgrowth of Dr. Henry E. Sigerist's health survey in 1944,[1] the populated southern half of Saskatchewan, with a population of 840,000, has been tentatively divided into twelve so-called health regions as a basis for the coördinated development of essential community health services. Of these, six now have active public health programs and one of the six, the Swift Current Region, has extended its services into the medical care field. The health region is built on the concept of the natural trading area surrounding a major trading center. It is composed typically of from three to five smaller trading areas, each with its principal center, and these become public health districts within the health region. As might be expected, the definition of district and regional boundaries has been largely the outgrowth of intensive hospital planning.

Doubtless the lack of county organization in Western Canada has facilitated the establishment of logical, geographic units of health administration. But the merging of a large number of local municipalities into one health region presents its own problems. In addition to its cities, towns, and villages, Saskatchewan has vast agricultural districts divided into more than 300 self-governing rural municipalities, recognized in health circles for 30 years for their "municipal doctor" plans. The health region draws into one channel the remarkable drive which has characterized organized farming areas in the province over the years as they have fought against odds to obtain medical services.

The Swift Current Region is in the southwest corner of Saskatchewan, bounded by Alberta to the west and Montana to the south. It includes one city, Swift Current, with a population of 7,200, 6 towns, 32 villages, and 38 rural municipalities. The region's 55,000 people are spread out over an area little smaller than the combined area of Massachusetts and Connecticut. There are less than 5 persons per square mile, in contrast to 546 in Massachusetts. In this, low-moisture and chron-

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

ically poor-crop, wheat farming and ranching territory, a complete health program faces odds which accentuate the significance of its success.

The visitor to the modern Regional Health Center in Swift Current finds not only clinic facilities and the offices of the Medical Health Officer and his senior staff, but also a beehive of some fifteen clerks and stenographers responsible to the full-time Secretary-Treasurer of the Regional Health Board. At this stage there is not complete integration of the public health and medical care programs administered by these two staffs, but as they work side by side, more effective coördination is constantly being achieved.

The program of more or less traditional public health services represents largely a decentralization of what remain primarily provincial functions. The Health Officer and his staff are employees of the Provincial Department of Public Health. Yet, one-third of the public health budget comes from the Region and increasing authorities are being vested in the Regional Health Board.

So far as various medical services are concerned, the Regional Board has almost complete freedom of action and responsibility, subject to the approval of the Provincial Government. The members of the Board look to the Health Officer for advice, but they administer the medical care program through their own Secretary-Treasurer and staff.

The Regional Board, which is a board of health for public health purposes and a "board of directors" for the medical program, is a powerful group of twelve community leaders. They are elected by District Health Councils in each of the four public health districts, on the basis of one Board member for roughly 5,000 population. Each district health council is composed of representatives of every municipal council in the district. This democratic structure seems effective in providing a two-way channel from the local municipal council to the Regional Health Board whereby local views may be considered at top level and, in turn, Board actions may be interpreted locally. These processes are facilitated by the holding of District Health Council meetings throughout the year, with Board members in attendance, and by the annual joint meeting of all ninety-four members of the four District Health Councils, together known as the Regional Health Council.

Basic public health work has become well established since it was placed on a full-time basis in February, 1946. Despite personnel shortages, an active program is in full swing. Serving the population of 55,000 under the direction of the Health Officer, there are 9 public health nurses, 3 sanitary officers, a health educator, and a regional registrar of vital statistics. The nurses and sanitary officers work out from three district offices as well as the Regional Health Center in the main district. It is hoped that two of the district offices will soon be superseded by District Health Centers located in the hospitals in the two towns concerned. This would foster the day-to-day coördination of diagnostic and therapeutic services and the activities of public health personnel in such field as communicable disease control, maternal and child health, mental hygiene, and health education.

In large units of health administration, covering vast stretches of sparsely settled prairie, health officers are primarily planners and administrators. Their role is based on the premise that the family doctor should become responsible for personal preventive services. Even when mass measures are called for, as in well baby clinics or in school health work, provision is made for employing local physicians to provide the service.

When the voters in southwestern Sas-

katchewan rolled up a large majority for the establishment of the Health Region, they were voting not only to obtain full-time public health services, but to tax themselves to provide medical and hospital services. July 1, 1946, was the "appointed day" and the medical program started on schedule. The Swift Current Board would be scornful of anyone listing the many reasons why compulsory health insurance cannot or should not be adopted. Wanting health insurance, they organized it and set it in motion, and they like what they have.

Swift Current's program of health services has gone through certain evolutionary changes during its 28 months of operation, but time permits only a description of the program as it operates today.

Every resident of the region is eligible for services, provided he is not in an exempt class, such as old age and blind pensioners, mothers' allowance recipients, and certain other public assistance recipients already entitled to medical care through a separate provincial program. Also exempt, are various Dominion Government beneficiaries. Indigent families for whom local municipalities are responsible participate fully in the regional program, their tax being paid by the municipality of residence. The region's program covers some 51,000 of the entire population of 55,000.

The principal service is medical care, including all medical, surgical, and obstetrical services on a free choice basis within the region, and by referral to specialists outside the region. The physicians may impose mileage charges and patients referred outside the region are occasionally charged the difference between the fee paid by the region and the specialist's fee. Otherwise, there are practically no restrictions in medical benefits.

The Regional Board employs a full-time radiologist to serve the whole region. While most of his work is done at the Swift Current Union Hospital, he makes periodic visits to the principal district hospitals. The Board is now supporting a plan to engage a pathologist to serve their own and two adjoining regions.

Perhaps the most popular service is the dental care program for children under 16. Four full-time dentists with assistants, using both fixed and mobile clinics, are reaching thousands of children who had seldom if ever had proper dental care.

Another benefit is hospital outpatient service, including diagnostic procedures and physiotherapy. The region provided inpatient hospitalization from July through December, 1946, but was able to drop this benefit with inauguration of the province-wide, tax-supported hospitalization program on January 1, 1947.

The medical care program is financed by a personal tax, a land tax, and provincial grants. The compulsory personal tax is $15 a year for the first member of a family, $24 for two, $30 for three, and $35 for four or more. In addition, all property owners pay a 2.2 mill land tax which produces one-fourth of the revenue raised by the region. Provincial grants which yield the remaining 9 per cent of total revenue cover half the cost of the three special services—radiological, dental, and outpatient services.

The 1949 budget totals $695,000, or about $13.65 per capita, not including $1.20 per capita for public health. Of the $13.65, about $10 per capita is for physicians' services, including referrals outside the region.

Physicians within the region are paid on a limited fee-for-service basis from an annual fund of $420,000. In 1947, before this limitation on expenditures was agreed upon, the region's physicians received on a discounted fee basis, a

total of $410,850. The average gross income per physician was $1,061 per month, or--on an annual basis--$12,739, not counting other sources of income.

A review of the services provided reveals that the office call rate is low, the home call rate is very low, and the hospital case and day rates are quite high. Thus, preliminary data reveal an office call rate for 1947 of about 1.5 per person, a home call rate of 0.2, and a hospital call rate of 0.8, or a total of 2.5 physicians' calls per person annually. This is very close to the 1942–1944 rate of 2.6 calls recorded in the tax-assisted "Experimental Health Program" sponsored by the U. S. Department of Agriculture in seven rural counties, but it falls considerably short of what we expect from group practice prepayment plans in urban communities.[2] Hospitalization data are not yet available by health region, but in 1947 under the Saskatchewan Hospital Services Plan, there were 156 hospital discharges per 1,000 throughout the province[3] compared to an average Blue Cross admission rate of 122 the same year.[4] The Saskatchewan program furnished 1,565 days of care per 1,000, not counting undischarged cases, compared to a Blue Cross average of 969 days per 1,000.

A high volume of hospital care compared to other services is characteristic of sparsely settled territory when the number of doctors is low and the supply of hospital beds is reasonably adequate. Since the Swift Current program started, the number of physicians in the region has jumped from 19 to 33, but there is still a ratio of one physician to 1,650 people. On the other hand, five new hospitals have opened their doors in the last three years, giving a region-wide ratio of 5.2 beds per 1,000 by rated capacity in the fourteen hospitals within the region. The whole nature of medical practice on the prairies has changed in the last twenty years or so, as patients have become accustomed to go to the doctor and to the district hospital rather than call the doctor to the home.

Here, then, on the northern Great Plains, we have a "pilot plan" offering a large measure of health security to a population group which is all too familiar with economic adversity. The people like the program and the physicians are satisfied with it. Recently, Dr. A. D. Kelly, Assistant Secretary of the Canadian Medical Association, analyzed the program in the light of the Principles Relating to Health Insurance enunciated by the Association in 1944. He concluded that the region's universal coverage contributory program was essentially consistent with these Principles, except that practising physicians were not in positions of administrative responsibility either in the Health Region or in the Provincial Health Services Planning Commission. Despite this, Dr. Kelly conceded that the regional administrative arrangement "has worked with remarkable satisfaction."[5]

The program is not static. The Regional Board and the Health Officer, in close consultation with professional and lay groups and community institutions, are constantly exploring new avenues of accomplishment and of coördination. Physicians are beginning to insist that their patients attend well baby and preschool clinics. Public health nurses are relying heavily on the assistance of private practitioners. A healthy attitude of mutual dependence is spreading. Coördination of community and personal health services in the field is fostered centrally by virtue of the fact that all administrative matters, relating to any aspect of the program, are channeled through the Director of Regional Health Services in the Provincial Department of Public Health.

The Regional Board is taking an in-

creasingly active interest in planning improved hospital and diagnostic facilities at regional and district centers. They are fully aware of personnel problems, too, ranging from the chronic shortage of nurses to gaps in their physician resources, and their latest action was to guarantee a doctor $6,000 to move into a remote area of the region. It has been particularly gratifying to see the Board's steady swing to the conviction that having two specialists in surgery and one radiologist in the region does not spell adequacy in specialist resources for 55,000 people. This conviction has not been un-influenced by the Board's annual expenditure of $75,000 for specialist care beyond the borders of the region. They now have their minds set on building a group of full-time consulting specialists who would handle cases by referral from general practitioners and would also visit principal district centers regularly. Characteristically, they are tackling this rather touchy objective in full consultation with their Medical Advisory Committee, sensing the soundness of an evolutionary development through common agreement.

Many problems still await solution, of course, in an evolving program of this kind. What is the proper balance in public health authority as between the province, the region, and its constituent municipalities? When a province-wide program of health insurance is established, what degree of decentralization may properly and wisely be permitted? Must the relationship between basic public health services and medical services remain one of coördination, or is complete integration possible? Can the organization of rural health services, as a quality measure, be accomplished through inducements and education without coercion?

Of perhaps more immediate concern, what would a continued drought like that of the 1930's do to a program financed largely through a flat, personal tax? Whatever the answer, there are signs that this worry may shortly be ended. The Dominion Government has just embarked on the first stage of a national health program, which is frankly preliminary to a second stage, Dominion assistance to the provinces to enable them to finance comprehensive health insurance. Toward the first stage, involving the strengthening and extension of public health work, hospital construction, and general health planning, the Dominion is granting $30,000,000 annually to the provinces. This sum, on a per capita basis, is about double that granted by the federal government in the United States for similar purposes. These grants are for general public health work, tuberculosis control, venereal disease, cancer control, mental hygiene, crippled children, professional training, public health research, and—as stated—hospital construction and general planning. The Dominion grants mean improved programs and more stable programs. If they have been criticised by major political parties in Canada other than the party in power, it is because they do not go far enough.

Compulsory health insurance lies just around the corner in our neighboring nation to the north. And the Swift Current program is proving that it will work.

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BUILDING OUR DEFENSES AGAINST INFLUENZA

PREDICTIVE epidemiology is always a hazardous business; but with the first half of the winter season gone—and no unusual prevalence of the disease reported in the United States—it did not look as if 1948–1949 were to be an "influenza year." Now, however, comes disquieting news of widespread upper respiratory disease on the continent of Europe. Whether this is influenza or not, whether it will cross the ocean or not, we cannot, at this writing, know. In any case, there is ample reason for perfecting our defenses against this disease. In the spring of 1918, there were distinct localized outbreaks which may reasonably be assumed to have been forerunners of the great pandemic of the fall. If such outbreaks occur this spring, their careful study will be of prime importance.

In 1918, there was very little we could have done in the way of control, even if the whole future time schedule of the pandemic had been released in advance. Today, the picture is a different one. We know that preventive immunization is a powerful weapon in the control of influenza; but we also know that it is a highly specific weapon and that the vaccine which controls one "type" of the disease may be practically ineffectual against another "type." We have the scientific basis for real protection against this appalling malady, but success will depend entirely on our knowledge of the particular strain of virus concerned in a given outbreak and our ability to prepare a specific vaccine in time.

It was for these reasons that the 4th International Congress for Microbiology in 1947 proposed a world program of collaboration for the control of influenza; and that—later in the same year—the Interim Commission of the World Health Organization established an Interim Influenza Committee in London. Early in 1948, the Strain Study Center now at Long Island College of Medicine was recognized by the Surgeons General of the U. S. Army, Navy, Air Force, and Public Health Service as our National Center to coördinate work in this country and to coöperate with the World Health Organization in its global task. This center is "(1) to serve as a clearing house in the United States for the receipt and dissemination of information regarding influenza and the virus responsible for the disease; (2) to coördinate the work of the diagnostic 'watch stations' needed in the United States for the laboratory identification of cases of influenza

and the isolation of new strains of the influenza virus; and (3) to aid in arranging conferences looking toward possible improvement of influenza vaccine by the incorporation of newly isolated strains of virus."

To work with this National Center, a chain of some 60 federal, state, and local laboratories, widely distributed through the United States and its territories, have been designated as participants in the program. These laboratories have been listed by J. T. Culbertson in the January issue of this *Journal*.[1] About half of these laboratories are prepared only to make agglutination-inhibition tests on the serum of patients with suspected influenza. The other half are also equipped for isolation of the specific virus. When a No. 1 station reports elevated titers of influenza antibodies for any outbreak of respiratory disease, the nearest No. 2 station will send into the affected area a team of investigators expert in the isolation of the virus. Once a strain of virus has been isolated, it will be sent to the National Influenza Strain Study Center on Long Island for antigenic analysis.

This is a sound and well articulated program of defense against influenza. Its execution should give us full knowledge of the presence of the enemy and open real possibilities of effective defense. Success, however, will depend on the full coöperation of health officers and of physicians throughout the land. Only by prompt reporting of all outbreaks of respiratory disease, and after immediate transmission of reports to the Influenza Information Center in the Division of Research Grants and Fellowships at the National Institute of Health in Washington, will the wheels begin to turn. This Center will alert the No. 1 station and the process described above will begin to function. Primary responsibility, however, must rest with the local health officer. Prompt notification of outbreaks of respiratory disease this spring may save many thousands of lives — if an epidemic of virulent influenza should visit us in the future.

REFERENCE

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COMMERCIAL EXPLOITATION OF GLYCOL VAPORIZERS

NUMEROUS articles on the use of glycol vapors for the prevention of acute respiratory diseases have appeared in the lay and semiscientific press during the past year. The general import of this publicity is that we now have a panacea for the prevention of colds. Since everyone catches colds, and colds result in more loss of time to industry than any other single cause, the desire on the part of the public to make use of such an apparently simple preventive method is natural. What the above mentioned writers fail to point out and, unfortunately, this is true even of one popular article which appeared in an official medical publication, is that upper respiratory infections are transmitted in many ways other than through the general atmosphere of occupied spaces. Infection from hands and handkerchiefs and sneezing cannot possibly be controlled by general aerial disinfection of occupied indoor spaces. No matter how completely the air may be disinfected, people will still catch colds.

The recent uncritical publicity has been accompanied by a nation-wide commercial exploitation of glycol vaporizing devices. These are being advertised for essentially indiscriminate use in homes, offices, schoolrooms, and almost any place where two or more people may congregate. The devices being offered for sale

vary from small cans or boxes that may be placed in the corner of a room or on a table, to vaporizers which may be installed in the ducts of large ventilating systems. Some of these devices have been designed by reputable engineers who are working to supply satisfactory apparatus; others are being promoted by individuals and concerns apparently quite ignorant of the scientific principles involved. None of these devices has yet been certified as to its effectiveness by the Council on Physical Medicine of the American Medical Association or any other authoritative body. Since health officers, school physicians, and practising doctors throughout the country are being deluged with requests for information and advice regarding glycol vapors, it is appropriate to review briefly the evidence on which their use is based.

Two years ago the status of methods for the control of air-borne infection was critically reviewed in a report by a subcommittee of the A.P.H.A.[1] This report emphasized that glycol vapors, particularly those of triethylene glycol, had a marked bactericidal effect on many types of air-borne bacteria and viruses when sprayed into experimental chambers. This effect is greatest when relative saturations of the vapor exceed 50 per cent and when the relative humidity is from 25 to 50 per cent. At lower relative saturations and in drier or moister atmospheres the bactericidal effect is progressively diminished. An instrument called a glycometer or glycostat, which measures the relative saturation of glycol vapor in the air and which may be utilized to control the output of vaporizers, has been developed for experimental uses but no such instruments are as yet available commercially.

The degree of aerial disinfection obtained in experimental trials of glycol vapors under field conditions in hospital wards, army barracks, and industrial establishments may be less marked than that achieved under experimental laboratory conditions. The glycol vapors are largely noneffective on bacteria-laden dust particles. Except in completely air-conditioned environments or when glycostats are used in conjunction with vaporizers it has been difficult to maintain adequate concentrations of the vapor. Constant engineering supervision has been necessary. Concomitant measures to control dust are imperative to achieve substantial aerial disinfection.

Only a few experimental trials of glycol vapors for the prevention of acute respiratory diseases have been reported. The results vary from a marked reduction of infections among bedridden patients in a hospital ward to inconclusive effects in other instances. Too few studies have been conducted in sufficiently large population groups, under sufficiently well controlled conditions and for sufficiently long periods of time to provide any basis for a conclusion regarding the effectiveness and practicability of glycol vapors for the control of acute respiratory infections.

Two years ago the subcommittee of the A.P.H.A. concluded:

> The available evidence strongly indicates that . . . glycol vapors are useful adjuvants to aseptic techniques in the reduction or elimination of air-borne infections in operating rooms, and in contagious disease and pediatric wards . . . The general use of disinfectant vapors in schools, barracks and in specialized industrial environments is not justified at the present time. There is great need for further carefully controlled field studies . . . There is no justification for indiscriminate use . . . in home, offices, or places of public congregation.

In the past two years real progress has been made in the development of vaporizing devices, but there has been essentially no advance in our knowledge of the effectiveness of these vapors in the prevention of acute respiratory diseases.

Until such knowledge becomes available, it is unwise to recommend the installation of glycol vaporizers except under carefully controlled experimental conditions. Present commercial campaigns of exploitation raise the real danger that the method may be discredited and that the rational development of this important field of air sanitation may be discouraged.

REFERENCE

1. Present Status of the Control of Air-borne Infections. Report of Subcommittee for Evaluation of Methods to Control Air-borne Infections, of the Committee on Research and Standards, A.P.H.A. James E. Perkins, M.D., *Chairman, A.J.P.H.*, 37:13–22, (Jan.), 1947.

HOME CARE AT THE MONTEFIORE HOSPITAL

THE program for home care at the Montefiore Hospital of New York City, described in this issue of the *Journal* by Dr. Martin Cherkasky, is worthy of the serious consideration of our readers. The concept is not, of course, a new one; but it has perhaps never been developed with quite such completeness and success.

The program is designed for patients who — for one reason or another — do not require further hospitalization but do need continuing medical and nursing care. When preliminary study of a given patient indicates that the necessary domiciliary care can be provided, with advantage to the individual concerned, the patient is transferred to his own home and the hospital supplies any or all of the following: medical service, at any hour of the day or night, with all necessary consulting specialist consultations; social service from the regular hospital staff; nursing care and instruction by the staff of the Visiting Nurse Service of New York, under a contract plan; housekeeping service, if indicated, to relieve the housewife for care of the patient; transportation to and from the hospital for special examinations or treatments; all necessary medication and appliances; occupational therapy and physical therapy in the home.

Analysis of over 23,000 days of patient care shows a cost of $3 per patient day for this type of treatment as compared with $12–$15 per day for intramural care. It should be noted that the cost of food and shelter is shifted to the family. It is also clear that the adoption of such a program does not mean a reduction of hospital costs, since the beds vacated by Home Care will be filled by other patients needing full hospitalization. The Montefiore plan has been made possible by grants from the New York Cancer Committee and the Greater New York Fund. The net potential saving of total community resources for meeting total community needs is, however, very great.

The program is presented by Cherkasky, *not* as a means of saving money; but as a method of providing better medical care for a specific group of patients. Under the plan developed at Montefiore the patient has not only the comfort of his own bed and the freedom of his own household regime, but a more personalized medical service when a doctor visits two or three times in his home than can be involved in the routine of ward rounds where attention is inevitably focused on new and critical cases. He receives not less adequate but infinitely better medical care; and to the doctors who participate, the program has brought an invaluable revelation of the social and psychological backgrounds of the lives of men and women who have hitherto been occupants of numbered beds on a ward.

The two essential factors in the success of such a plan are: (1) the careful selection of suitable cases; and (2) the ability of the hospital to provide the Home Care services listed above. At Montefiore, every patient considered for

Home Care is first studied by the physician to determine whether he is medically eligible; and, next, a careful social service checkup is made to determine the suitability of the home and the adequacy of the emotional atmosphere, on the part of both the patient and the family. About half the cases considered qualify on both grounds.

This program makes a contribution of major importance to the technology and to the philosophy of medical care. It is essential, however, to remember that its successful application depends on a high degree of hospital development, in the fields of medical staff, social service, nursing, physical and occupational therapy. It would be most unfortunate if so fruitful a concept were to be discredited by wholesale displacement of patients by hospitals which lack the facilities to carry the program out successfully.

HUGH S. CUMMING

THE death of Hugh S. Cumming on December 20, 1948—at the age of 79 years—removed one of the outstanding leaders of American public health. He was a member of this Association from 1914, became a Charter Fellow in 1922, served as Elective Councillor (1921–1922 and 1925–1931), and Executive Board Member (1929–1931); and was elected President in 1931.

Dr. Cumming was in the fullest sense a "career man" in public health. He joined the staff of the U. S. Public Health Service in 1894, within less than a year of graduation from the University College of Medicine at Richmond, and progressed steadily to his appointment as Surgeon General in 1920. In this latter post, he served until 1936, overlapping the terms of five Presidents of the United States. Under his administration, the Service grew from comparative obscurity to a bureau of far-reaching influence, employing more than 1,000 physicians. During this period, the maritime quarantine program of the Service was carried to completion, pre-immigration physical examinations were introduced at our Consulates abroad, a national leprosarium and national narcotic farms were established, and the work of the Hygienic Laboratory was greatly strengthened. Perhaps the most significant and outstanding service of this Surgeon General, which does not appear in the official record, was the discernment and vision with which he brought young men of ability and promise into positions of responsibility in the Service. Many of our leaders in subsequent years were selected and advanced in the Service by General Cumming.

Dr. Cumming was not only a wise administrator but also an excellent type of the Virginian gentlemen, with a flair for diplomacy. On the international stage, he served as President of the Office Internationale d'Hygiène Publique, as an active member of the Health Committee of the League of Nations, as a delegate to the Cannes Conference in 1919, and as head of an allied medical mission to Poland. His major interest, however, was in the Western Hemisphere, and he served for many years as President of the Pan American Sanitary Bureau, continuing in this post after his retirement from the Public Health Service up to 1947. He received decorations from seven Latin-American countries for the distinguished and generous service which he gave to this cause.

The American Public Health Association, the United States Public Health Service, and the general cause of public health in the Western Hemisphere continue to reap notable benefits from Hugh Cumming's leadership in the past. They will recall his name with grateful admiration in the future.

LETTERS TO THE EDITOR

TO THE EDITOR:

This letter is prompted by the recent excellent article by John B. Blake, "The Origins of Public Health in the United States." The following facts concerning public health in the prospective State of Hawaii may not be generally known and may be of interest to some of your readers.

1825. Action was taken against the "promiscuous immorality which had sprung up in the port of Honolulu . . ." This may have been the forerunner of a venereal disease control program which was quite highly developed in the '60's with dispensaries and hospital beds for syphilitics. *(Oxford Dictionary*—1862. "A syphilitic ward in the Queens Hospital at Honolulu.")

1839. Kamehameha III, on May 29, 1839, signed Hawaii's first quarantine law. "4. For the purpose of carrying into execution the above regulations, it shall be the duty of the several Governors, to set apart a Board of Health for each of the harbors of the Sandwich Islands. And such Board of Health shall have full power to enact such laws and regulations as may be necessary to protect the health of their several places. They (the governors) shall also appoint health officers . . ."

1850. December 16, 1850, Kamehameha, in privy council, established a Board of Health for the Islands.

1851. On May 8, 1851, the legislature confirmed the above action. Some subjects covered by the 19 sections of the law were: Powers of the Board members; nuisances; study of existing quarantine laws and framing rules regarding them; reporting of "malignant disease" and deaths; appointment of physicians to care for isolated patients; and power to make necessary regulations.

1854. The Minister of Interior was directed to appoint vaccinators for the several major counties.

1855–1862. The Minister of Interior includes in his report activities of the Board of Health.

1866 to the present time. The Board of Health has submitted annual or biennial reports.

The documents mentioned above are available at the Territorial Archives, Honolulu. They may represent one of the most complete records of early public health activity of any of the several states or territories.

SAMUEL D. ALLISON, M.D.
Dermatology
563 Young Hotel Building
Honolulu, Hawaii

December 28, 1948.

TO THE EDITOR:

When one is honoured by a reference in the AMERICAN JOURNAL OF PUBLIC HEALTH one expects to be quoted correctly. May I point out that in Dr. Quinn's article on rheumatic heart disease in your issue of August, 1948, page 1078, I am credited with "the statement based on data collected some 30 years ago that rheumatic fever is 30 times as common in *industrial as in rural towns.*"

What I said was very different. "No disease has a clearer cut social incidence than acute rheumatism, which falls perhaps 30 times as frequently upon the poorer children of the industrial town, as upon the children of the well-to-do."

I most cordially agree with Dr. Quinn on the importance of Crowding.

This statement is probably still true in England, though the incidence has much lessened.

J. A. GLOVER, M.D., F.R.C.P.
Editor, *Monthly Bulletin* of the Ministry of Health.
London, S.W. 1.

November 22, 1948.

Clearing House on Public Health Salary Information

MANY CITIES INCREASE PAY RATES

Nearly two-thirds of 97 reporting cities of over 5,000 population increased the pay of some or all employees in the first half of 1948. Most of the other cities had granted pay increases in 1947, and several raised pay rates two or more times during the period from January 1, 1947, to July 1, 1948. These are the highlights of a pay rate survey of 20 standard positions in nearly 100 cities made recently by the Civil Service Assembly and the International City Managers' Association.

In 1947 cities tended to raise the wages of firemen, policemen, and certain labor groups, and let the pay of junior professional employees and certain skilled office workers lag behind. But during the first part of 1948 the discrepancy was narrowed, with more cities making pay increases for professional employees and office workers.

Thirty of the 97 cities reported that the pay rates of all employees were increased during the first half of 1948; 11 cities of 25,000 to 100,000 and 9 cities of 5,000 to 25,000 increased all pay rates.

Most cities increased pay by a flat amount per month, ranging from $5 to $25. Only 3 increased salaries by a flat percentage amount (5 per cent), and 4 adopted a higher pay schedule in connection with new position classification and pay plans. The survey entitled *Pay Rates for Selected City Jobs in July, 1948*, is published by the International City Managers' Association, 1313 E. 60th Street, Chicago, Ill.

SALARY DATA IN MUNICIPAL YEAR BOOK

The *Municipal Year Book* for 1948 has a chapter on Salaries of Municipal Officials. There are tables showing average, lowest, highest, and quartiles for the various types of administrators grouped by population of the cities. The value of the figures is limited for purposes of comparison between one administrator and another because the same cities do not report for each category. However, if you are a health officer in a city of 50,000 population with a salary of $4,500, it might help to tell your appropriating body that only 14 out of 56 cities of your size pay as little as that, and that 14 pay $6,880 or more, with $8,550 as the top.—*Municipal Year Book;* International City Managers' Association, Chicago. 1948.

SALARIES IN SCHOOL HEALTH SERVICE

Early in 1948 the Cincinnati public schools conducted a fact-finding inquiry concerning school health services in other cities of similar size. Replies were received from 36 cities of 43 queried, giving maximum salaries for medical and other specialized personnel engaged in school health services. This study might well be included in a library or bibliography of current salary data. Available from Cincinnati Public Schools, Department of Research, C. G. Tower, Director, 216 E. Ninth Street, Cincinnati 2, Ohio.

OHIO PROPOSES $5,000,000 INCREASE IN STATE SALARIES

The Public Administration Service has just recommended to the Ohio Salary Study Commission, salary increases totalling 5 million dollars a year for the 26,000 employees of the state. The Governor's salary would be raised from $13,000 to $20,000, that of chief administrative officers such as state audi-

tor, treasurer, attorney general, directors of education, health, finance, etc., from $6,500 to $12,000. This represents a rise of more than three-quarters. The salary plan further provides for salary ranges of five steps, with each step representing an increase of about 5 per cent over the preceding step. If the plan should go into effect for the state health officer, for example, it would have a far-reaching effect on the salary levels for other state health officers as well as for employees of health departments throughout Ohio.

In setting up the recommendations the report made it plain that the recommended rates were based upon the practices of other large states of the East, Mid-west and West. Recognizing the competition with private business, the study group made an effort to strike a medium between practices of other states and the salaries paid by private employers.

CONFESSION IS GOOD FOR THE SOUL

The *Oregon Health Bulletin* for December 8, 1948, says: "Although county health organization in this state is favorable in comparison to the national picture, present indications are that Oregon will enter 1949 without a single local health unit which meets basic acceptable standards recommended by the American Public Health Association.

"Principal reasons for the deficiencies are inadequate budgetary provision for recruitment of necessary staffs and salary scales unable to compete with private practice or compensation offered by the neighboring states of California and Washington.

"... Salary difficulties encountered in obtaining medical personnel can be seen in the fact that present remuneration to private physicians on the Pacific coast averages far in excess of any public health pay scale in Oregon."

This reënforces what has often been said, namely, if adequate salaries were offered, the shortages in public health personnel would largely disappear. The oftener this is said in so many words or in the terms of the Oregon *Bulletin*, the sooner will appropriating bodies recognize its truth and act upon it.

MEDICAL ECONOMICS PUBLISHES ANOTHER STUDY OF PHYSICIANS' INCOMES

Medical Economics, which is a national business monthly magazine for physicians, has completed its 6th quadrennial survey of incomes of physicians in private practice. The results are published in several issues of *Medical Economics*—September, October, November and December, 1948, and February, 1949—and will be continued in future issues.

The survey is based on a sample of approximately 5,000 physicians of 135,000 who received the questionnaire with their March, 1948, issue of *Medical Economics*. Data are shown with respect to gross and net income by states, by medical specialty, by years of practice, and a number of other classifications.

This first post-war study shows average net income of practising physicians more than doubled since the latest previous study in 1935. Although gross income figures are not at all comparable with salaries of public health physicians and net income figures not wholly so, this material should nevertheless be useful on a shelf of current salary data. It has not yet been decided whether the material will later be put together in a bound volume.

Medical Economics is published in Rutherford, N. J. It's subscription price is $3.50 per year.

STUDY OF SALARIES AND WORKING CONDITIONS OF NUTRITIONISTS

Questionnaires for a study of the economic status of dietitians, nutritionists, and food service managers were to be mailed to representative members of

the professions in February. The study is being conducted by the Bureau of Labor Statistics of the U. S. Department of Labor in coöperation with professional societies.

The survey is intended to find out the facts about earnings and working conditions of these persons and to learn what they think of their jobs. Together with similar studies of other professions, such as nursing, social work, and librarianships, it will give a picture of the comparative economic status and will provide much needed general information on the earnings and working conditions of the professional workers in the United States.

In announcing the study, Ewan Clague, Commissioner of Labor Statistics, urged all persons receiving questionnaires to answer them promptly. All replies will be entirely confidential and anonymous, and will be used only to prepare a summary report on economic conditions in the profession.

A.P.H.A. Vocational Counseling and Placement Increases Activity

Franziska W. Racker, M.D., M.P.H., who serves on the A.P.H.A. staff in charge of the Vocational Counseling and Placement Service in the New York office, has reported on her activities for the past year. Of particular interest is the comparison between the demand and supply of professional services in public health as manifest during the Annual Meeting week of the A.P.H.A. in the last two years.

In October, 1947, at the 75th Annual Meeting of the A.P.H.A. in Atlantic City, 52 employers interviewed the Service and a total of 69 candidates appeared who were interested in placement. In November, 1948, at the 76th Annual Meeting of the Association in Boston, 89 employers registered with the Service and only 38 candidates.

The following table shows the relationship of demand and supply in one week's registration.

It should be noted that the Association does not undertake to register public health nurses, believing that this is a special function best handled by specialized agencies.

Employers and Candidates Interviewed in Boston at the Vocational Counseling Booth November 8–12, 1948

	Employers		Candidates	
	1948	1947	1948	1947
Dentists	1	—	1	—
Health Educators	12	8	9	22
Laboratory Workers	9	9	2	4
Non-Medical Administrators	—	1	1	6
Nurses	14	3	5	—
Physicians	34	22	17	18
Sanitarians	7	1	1	—
Sanitary Engineers	4	2	1	10
Statisticians	—	2	1	8
Miscellaneous	8	4	—	1
Total	—	—	—	—
	89	52	38	69

Revised Criteria for Accreditation of Public Health Courses

The Criteria for accreditation of institutions for the degree Master of Public Health (M.P.H.—D.P.H. in Canada) and the degree Doctor of Public Health (Dr.P.H.) for the academic year 1949–1950, as recommended by the Committee on Professional Education and approved by the Executive Board, are printed below. In comparing the new Criteria with the Criteria on which the accreditation of schools for the academic year 1948–1949 was based, two changes will be noticed. The new Criterion No. 3 raises the old standard of a minimum requirement of six full-time senior faculty members to a new standard of eight, of which four must be primarily responsible to the administration of the school (previously three). This new requirement is already met by all ten schools which are accredited for 1948–1949.

The new Criterion No. 12 for the Dr.P.H. degree will make it possible for the schools to accept for the Dr.P.H. degree unusually well qualified persons without a prior doctoral degree, while the old Criteria stipulated that such students must hold a prior doctoral degree.

Criteria for Institutions To Be Accredited for the Degree of Master of Public Health (Diploma of Public Health in Canada) and for the Degree of Doctor of Public Health, for the Academic Year 1949–1950 *

Criteria for Both Degrees

The Institution

1. Any institution to be accredited must be a member of the Association of American Universities, or present evidence that it may reasonably be considered as qualified for such membership.
2. The school, faculty, or council administering courses in public health must have such practical autonomy that requirements for the degrees are effectively controlled by the public health faculty.
3. The teaching of public health must be under the direction of a full-time teaching faculty which must include, in addition to assistant professors and others of lower rank and in addition to part-time appointees:
   a. One member of professorial grade as director of the school or department, and at least three other members of professorial or associate professorial grade—all four primarily responsible to the administration of the school, and
   b. At least four other members of professorial or associate professorial grade, either primarily responsible to the school or giving full time to the university and carrying specific major responsibility for teaching and research in the school. Such a minimum faculty could provide for a body of graduate students in public health totalling not more than approximately thirty such students.
4. The school or department must have an assured minimum basic income adequate for its teaching and research functions and for meeting the various criteria outlined. Such income should be construed to include income from endowment of the school, contributions made from general university funds, and grants made over a period of at least five years from sources outside the university.
5. Proper housing must be available, including

* Revision adopted by the Committee on Professional Education of the American Public Health Association, November 8, 1948. Approved by the Executive Board November 29, 1948.

lecture rooms, seminar rooms, and adequate laboratory facilities for the teaching of subjects in the field of microbiology, including microscopes, culture media, apparatus, etc.; for the teaching of vital statistics, including calculating machines for student use, and apparatus for chart-making, with tabulating machinery accessible for demonstration purposes, and for the teaching of sanitary engineering, including laboratory facilities for the examination of water and sewage and for the demonstration of the basic principles of hydraulics.

6. Library facilities are essential to the extent of at least 3,000 volumes in the general field of public health, including such special topics as epidemiology, microbiology, vital statistics, sanitary engineering, medical economics and medical sociology, nutrition, and the like, and current periodicals (not including health department reports) to the number of at least 50 in the fields mentioned above.

7. There must be available conveniently located administrative units of public health services which can be utilized for observation and criticism in the basic courses for the Master of Public Health, and which are of sufficiently high quality to make such observation fruitful.

Criteria for the M.P.H. Degree

The Course

8. Candidates to be admitted for the degree of Master of Public Health (Diploma of Public Health in Canada) may be either:
   a. Holders of the degree of M.D., D.D.S., or D.V.M., or equivalent degree, from an acceptable institution; or
   b. Holders of the Bachelor's Degree with adequate training in mathematics and the natural sciences, including chemistry and biology, and also qualified in some professional capacity to pursue education in public health.

   The latter qualifications may normally be fulfilled either by
   x. Professional academic qualifications in engineering, public health nursing, education, or some other field of public health representing the equivalent of at least one year of academic work in addition to the completion of a four years course leading to the Bachelor's Degree;
   y. or experience (normally not less than three years) in some field of public health practice or in teaching of a type acceptable to the school.

9. The length of the course shall be not less than one academic year of 32 weeks.

It is highly desirable that the candidate shall have had practical public health experience in the form of supervised field service or in a position involving the exercise of substantial initiative and responsibility. This experience should preferably be obtained prior to entrance into the school. In some schools, candidates not so equipped on entrance are required to complete three months of practical work in the field before receiving their degree.

10. The following courses are among those generally offered in schools of public health:
    a. Public Health Practice (Administration)
    b. Sanitation
    c. Microbiology
    d. Vital Statistics
    e. Epidemiology
    f. Physiological Hygiene
    g. Nutrition
    h. Public Health Nursing
    i. Health Education
    j. Social and Economic Factors Influencing Health (Economic Factors in Health)
    k. Mental Hygiene
    l. Public Health Law
    m. Industrial Hygiene
    n. School Health
    o. Maternal and Child Health
    p. Tuberculosis
    q. Venereal Disease
    r. Dental Health
    s. Hospital Administration

It is believed that it would be highly undesirable to make standard requirements with regard to any particular courses of instruction. It does seem important, however, that the student—at some point in the M.P.H. course, or prior to that course—shall receive instruction in the following basic fields:

A. *Basic Public Health Sciences*
   (1) The nature and functioning of the human organism, and the personal behavior which influences its well-being, including nutrition and mental hygiene.
   (2) The nature and behavior of various forms of parasitic life, including

viruses; their interaction with the human body as demonstrated by clinical and immunological reactions; the modes in which such microörganisms are transferred from host to host in the course of their epidemiological history; and the ways in which such dissemination may be controlled.

(3) The physical environment as it influences health, including not only the classical problems of environmental sanitation, but also those relating to housing and industrial hygiene.

(4) The social and economic factors which influence the health of the individual and of the community, and the influences of sickness on the social and economic status of the individual and the community.

(5) The nature and sources of quantitative information bearing on the health of the people, and its numerical presentation and analysis.

B. *Public Health Practices*

(6) The principles of applying the basic sciences listed above to community health and welfare. This involves the elements of sound public administration as applied to official and voluntary health agencies, including office management, budget making, personnel relations, and public health law; and includes also the wide field of public relations as influenced by health education and community education.

11. There must be opportunity for advanced specialization in one or more of the fields listed under 10 above or in such special fields as tuberculosis control, venereal disease control, or tropical medicine. There will be little time available in the M.P.H. year for advanced specialization; but basic work can be conducted effectively only in an atmosphere of advanced scholarship and with the essential stimulus which comes from the conduct of productive research by the faculty and advanced students.

CRITERIA FOR THE DR.P.H. DEGREE

12. Candidates to be matriculated for the degree of Dr.P.H. must be persons of demonstrated ability and promise of leadership. They must normally hold a doctoral degree from an acceptable university; although in exceptional cases, candidates of unusual experience and attainment may be admitted without such a degree.

13. The candidate for the Dr.P.H. must complete—or must already have completed—basic courses equivalent to those required for the degree of M.P.H. by the university in which such student matriculates for the Dr.P.H.

14. The candidate, in addition to fulfilling criteria 12 and 13 must complete a minimum of one academic year of work in residence at the university involving advanced specialization in the particular area of public health for which the student is preparing. The total period of academic instruction in public health should be at least two years beyond that spent in acquiring previous doctoral degrees.

15. The candidate must demonstrate ability for leadership in his field, as well as for advancement of scientific knowledge. This must be indicated by successful professional experience in a post involving the exercise of substantial initiative and responsibility, preferably prior to admission.

16. The candidate must indicate capacity to make substantial contributions to the advancement of the science and art of public health by submitting a dissertation, *based on original research*, satisfactory to the authorities of the university.

Credit Lines

WEST VIRGINIA STATE DEPARTMENT OF HEALTH

"A Close-Up View" by the West Virginia State Department of Health is subtitled "A Picture of Public Service in West Virginia." It shows what can be done with a typewriter, a mimeograph machine, and a little imagination. In 9 widely spaced pages it asks and answers 19 questions about public health in West Virginia beginning with "What is public health?" and ending with "How can we get better local health services?" It answers in simple straightforward language two of the questions most frequently asked by laymen, "What is a local health department?" and "What should a local health department mean to me and my family?" For those states or communities that neither have a large printing budget nor color and drawing artists at their command, this "Close-Up View" should be useful in showing how to present basic facts for busy people. The address of the West Virginia State Health Department is Charleston 5, W. Va.

THE CHILD WITH SPECIAL HEALTH PROBLEMS

At a joint session of the American School Health Association, the School Health, and the Maternal and Child Health Sections at the 76th annual meeting of the A.P.H.A. in Boston, a panel discussion of *Children with Special Problems* was a part of the program. This is a report recently published by the National Tuberculosis Association by its Committee on Educational Adaptations for Children with Special Health Problems, whose Chairman is Charles E. Wilson, M.D., of Yale University. The full title of the report is *Children with Special Health Problems: Educational Adaptations in School, Home and Hospital.*

The report centers on tuberculosis, nutrition, rheumatic fever and heart disease, and a miscellaneous group of conditions including convalescence, diabetes, allergies, and epilepsy. The crippled, the blind, and the deaf are not considered since there is already a large body of published information on these conditions.

The purpose of this brief report is to encourage everywhere "the adaptation of education to the needs of individual children," a principle everywhere agreed upon but not yet everywhere put into practice. The key to effective adaptation of educational processes to the needs of the special child is teamwork between parent, teacher, physician, hospital, and health department. It is an excellent guide for school physicians, administrators, nurses, teachers, and health agency workers.

The report, which includes a brief set of references on each special condition discussed, is available from state and local tuberculosis associations.

ANOTHER CONSOLIDATION IN INDIANA

Some time ago Floyd and Harrison Counties of Indiana took the leap into matrimony and organized the first bi-county health department in the state. But the City of New Albany in Floyd County, with its population of about 25,000, decided to stay on the outside. Now its health officer has resigned and the city fathers "got religion." They have consolidated the New Albany Board of Health with the Floyd-Harrison County Health Department. The city will join in the county organizations program and share the

services of the joint department. There will be one vital statistics office for the two counties and the City of New Albany. Congratulations are in order for all concerned.

TAKING TIME BY THE FORELOCK

At the end of the Association's annual meeting in Boston, on November 12, advantage of the interest stirred up in health matters in the newspapers and the radio was taken to have "the greatest single lack in America's public health program—full-time, well-staffed local health units—" discussed on Radio Station WHDH, Boston.

Those taking part were Martha Eliot, M.D., Associate Director of the Children's Bureau in Washington and retiring President of the American Public Health Association; Hugh R. Leavell, M.D., Professor of Public Health Practice at the Harvard School of Public Health; and Arthur Burke, M.D., District Health Officer of the Nashoba Health District, made up of ten towns. They were introduced by Vlado A. Getting, M.D., Massachusetts Health Commissioner. New England listeners were reminded of the well known facts that thousands of communities are without the local health services that should reach every citizen and that these services can be had only by the coöperation in a unified department, of communities too small to operate with effectiveness individually.

TOXICOLOGY OF SOME INSECTICIDES

"Toxicology of the Newer Agricultural Chemicals" by Arnold J. Lehman, M.D., Chief, Division of Pharmacology, U. S. Food and Drug Administration, should be of interest to everyone using the newer insecticides. A discussion of mean lethal doses as well as toxicity by dermal application is discussed. The article appears in the *Quarterly Bulletin,* Association of Food and Drug Officials of the United States, XII:3 (July), 1948, also as a supplement to the *Service Letter,* National Pest Control Association, Inc., 3019 Fort Hamilton Parkway, Brooklyn 18, N. Y.

SURVEY OF STATE HEALTH SERVICES BY WISCONSIN MEDICAL SOCIETY

Instances multiply in which the American Medical Association or its state or county societies are providing statesmanlike leadership in increasing both the quantity and quality of official public health services. The latest such instance that has come to hand is the *Report of the Technical Committee of the Wisconsin State Medical Society* to the subcommittee on reclassification and review of administrative agencies and state services of the legislative council, made up of two state senators and three representatives.

This survey of a state's public health organization could well serve as a model for such surveys in other states. It is a reasoned, restrained document completely free of special pleading. In making recommedations, it takes full account of the difficulties, traditional and otherwise, that stand in the way of their being carried out and the efforts already begun to overcome current shortcomings.

The cost of the study and publication was borne by the State Medical Society. The technical committee making it consisted of:

Dr. Gaylord W. Anderson, Director of the School of Public Health, University of Minnesota

Dr. W. W. Bauer, Director of the Bureau of Health Education of the American Medical Association and former City Health Officer of Racine, Wis.

Dr. Carl D. Neidhold, past chairman of the Council on Scientific Work of the State Medical Society and a member of the Board of Health of the City of Appleton since 1934

Dr. H. Kent Tenney, past president of the Dane County Medical Society and advisor to the Bureau of Handicapped Children of the Department of Public Instruction

Information is not given as to whether the study is available for limited or general distribution, but the Society's address is 917 Tenney Building, Madison 3, and its Secretary is C. H. Crownhart.

KIWANIANS HEAR THE NEWS ABOUT "DRUNKS"

The speed of today's communication is graphically illustrated by "Iron Bars or Medicine?" in the *Kiwanis Magazine* of October, 1948, written by Anton Carlson, M.D., and Joseph Hirsh, President and Executive Director respectively of the Research Council on Problems of Alcohol. Its thesis is that chronic alcoholism is a disease, not a crime, and is a community problem. Medical and public health circles have only yesterday been persuaded of this thesis; in fact many are not yet persuaded. But already the organ of a great citizen group recognizes that "a wide awake and interested public can make the principles" of a medical approach to this problem "a living reality."

CITIZEN JOE WANTS HIS FACTS STRAIGHT

An interesting example of telling the citizen about health services in terms he can understand is *Major Activities* of the Connecticut State Department of Health. Done in blue and white, it tells how the state health department helps the garage where Mr. Jones works to overcome dangerous monoxide gas, how Mrs. Jones gets service in a prenatal clinic, how 5 year old Johnny was vaccinated, how the milk and water of the community were made safe. From that point it goes on to tell in conventional style the activities of each of the bureaus in the state health department.

KEEPING UP WITH THE BRITISH SOCIAL SERVICES

In November, the British Information Services (30 Rockefeller Plaza, New York 20) published No. 1 of its "Notes on British Social Services," which it expects to issue from time to time. This first issue summarizes briefly a good deal of information on the new health services and experimental industrial health service, social insurance, the disabled, as well as mentioning books for reference. This is a good way to keep up with the factual information on what is happening in the British Social Services.

COMMUNITY CARDIAC RESOURCES

The Philadelphia Heart Association has prepared a *Guide to the Use of Community Services for Heart Disease and Rheumatic Fever Patients in Philadelphia.* In an 11 page pamphlet it gives the main facts about treatment, convalescent care, home teaching, occupational therapy, social case work, vocational rehabilitation, follow-up, and recreational facilities. It further reminds the reader that rheumatic fever, as a reportable disease, should be reported to the Philadelphia Health Department as soon as the diagnosis is made.

NEW JERSEY HAS A FIRST

The report is now out of the First Annual Public Health Institute of Passaic County (June, 1948), sponsored by the Passaic County Tuberculosis and Health Association. A committee headed by Frederick P. Lee, M.D., Health Officer of Paterson, planned a two day institute in June limited to active public health workers in New Jersey. Panel discussions on Mental Health Approach to Public Health Activities, Methods and Materials in Health Education, and Communicable Diseases were held.

The report which includes a brief preface telling how arrangements were worked out is presumably available from Walter S. Page, Jr., Executive Secretary, Passaic County Tuberculosis and Health Association, Paterson 17, N. J.

BIBLIOGRAPHY OF PUBLIC HEALTH MOTION PICTURES AND FILM STRIPS

The accompanying bibliography of health film catalogs and general catalogs listing films on health subjects was prepared, at the suggestion of the Committee on Public Health Films of the Public Health Education Section of the American Public Health Association, for initial use at the Annual Meeting in Boston, November, 1948. It was assembled by Thomas C. Stowell, Assistant Director, Office of Public Health Education, New York State Department of Health, and Anne J. Edmund, Health and Welfare Division, Metropolitan Life Insurance Company, and represents materials which they have found useful in their programs.

This should not be considered a complete listing, but rather a start on something which it is believed will be helpful to public health workers in their health education activities. The Public Health Education Section has recommended that the bibliography be an annual publication in the *Journal*, with reprints for general distribution, and the committee will appreciate recommendations for future lists, which may be sent to Mr. Stowell at 18 Dove St., Albany 6, N. Y. It is proposed that future lists include the date of each catalog.

Reprints may be obtained from the Association headquarters in New York City.

General Catalogs

"Educational Film Guide"
H. W. Wilson Company, 950 University Avenue, New York 52, N. Y.

"Educators Guide to Free Films"
Educators Progress Service, Box 497, Randolph, Wis.

"Guide to U. S. Government Motion Pictures"
U. S. Library of Congress, Washington 25, D. C.
(Published in June, 1947, but Motion Picture Division was liquidated July, 1947)

"1000 and One; Blue Book of Non-Theatrical Films"
Educational Screen, 64 East Lake Street, Chicago, Ill.

"The United Nations in Films"
Film and Visual Information Division, United Nations Department of Public Information, Room 6300 C, Empire State Building, New York 1, N. Y.

"U. S. Government Films for School and Industry"
Castle Films, Division of United World Films, Inc., 445 Park Avenue, New York 22, N. Y.

Specialized Catalogs

Educational

"Dental Health Education Material"
American Dental Association, 222 E. Superior St., Chicago 11, Ill.

"Films Interpreting Children and Youth"
Association for Childhood Education, 1206–16 Street, N.W., Washington 6, D. C.

"Health Films Catalog"
Educational Film Library Association, Inc., 1600 Broadway, New York 19, N. Y.

"Sources of Educational Films"
National Education Association of the United States, 1201–16 Street, N.W., Washington 6, D. C.

"Films for Classroom Use"
Teaching Film Custodians, Inc., 25 W. 43rd St., New York 18, N. Y.

Medical

"Catalogue of Certified Professional Motion Picture Films"
Academy-International of Medicine, Department of Audio-Visual Aids, 214 W. Sixth Street, Topeka, Kans.

"List of Medical Films Which May Be Used in Professional Training"
Medical Illustration Division, Research & Education Service, Department of Medicine & Surgery, Veterans Administration, Washington 25, D. C.

"Medical Motion Picture Films"
American College of Surgeons, 40 East Erie St., Chicago 11, Ill. (December issue of the *Bulletin*)

"Medical Motion Pictures Procurable on a Loan Basis"
American Medical Association, Committee on Medical Motion Pictures, 535 N. Dearborn St., Chicago 10, Ill.

Safety

"Motion Picture Films of the Bureau of Mines"
Office of Mineral Reports, Bureau of Mines, Washington 25, D. C.

"National Directory of Safety Films"
National Safety Council, 20 N. Wacker Drive, Chicago 6, Ill.

Housing

"Films on Housing"
U. S. Federal Public Housing Authority, 1201 Connecticut Ave., N.W., Washington, D. C.

Nutrition

"Approved Films on Food and Nutrition," 2d ed. completely revised by the New York City Food and Nutrition Committee
Health Council of Greater New York, 137 Centre St., New York 13, N. Y.

Business and Training

"Business-Sponsored Educational Films"
Committee on Consumer Relations in Advertising, Inc., 420 Lexington Avenue, New York 17, N. Y.

"General Electric Motion Pictures"
Visual Instruction Section, Publicity Divisions, General Electric Company, Schenectady, N. Y.

"General Motors Film Catalog"
General Motors Corp., Department of Public Relations—Film Section, General Motors Building, Detroit 2, Mich.

"Index of Training Films"
Business Screen, Inc., 812 N. Dearborn St., Chicago 10, Ill.

"Sound Slidefilm Guide and Complete Source List"
Business Screen, Inc., 812 N. Dearborn St., Chicago 10, Ill.

Catalogs of Distributors

Association Films (Y.M.C.A. Motion Picture Bureau), 347 Madison Avenue, New York 17, N. Y.
Bell & Howell Filmosound Library, 1801 Larchmont Avenue, Chicago 13, Ill.
Brandon Films, Inc., 1600 Broadway, New York 19, N. Y.
Film Center, 25 W. 45th St., New York 19, N. Y.
Walter O. Gutlohn, Inc., 25 W. 45th St., New York 19, N. Y.
Ideal Pictures Corporation, 26 to 34 E. 18th St., Chicago 5, Ill.
New York University Film Library, 71 Washington Square, New York 12, N. Y.
United World Films, Inc., 445 Park Ave., New York 22, N. Y.
Visual Education Service, Inc., 131 Clarendon St., Boston, Mass.

Catalogs can also be obtained from film libraries in colleges, universities, local and state health departments, state department libraries, county and city school libraries, museums and public libraries.

Catalogs of Producers Who Are Also Distributors

British Information Services, Film Division, 30 Rockefeller Plaza, New York 20, N. Y.
Coronet Instructional Films, Coronet Building, Chicago 1, Ill.
Encyclopaedia Britannica Films, Inc., 20 N. Wacker Drive, Chicago 6, Ill.
Federal Security Agency, Public Health Service, Communicable Disease Center, Atlanta, Ga. (Each individual page of the Film Catalog-Utilization Guide is made for instructor use and may be ordered separately.)
The Institute of Inter-American Affairs, 499 Pennsylvania Ave., N.W., Washington 25, D. C.
March of Time, Forum Edition, 369 Lexington Avenue, New York 17, N. Y.
National Film Board of Canada, 620 Fifth Ave., New York 20, N. Y.

Magazines Containing General Information

Audio-Visual Guide—Educational and Recreational Guides, Inc., 172 Renner Ave., Newark 8, N. J.
Business Screen—Business Screen Magazine, Inc., 812 N. Dearborn St., Chicago 10, Ill.
Educational Screen—Educational Screen, Inc., 64 E. Lake St., Chicago 1, Ill.
Film Forum Review—Institute of Adult Education, Teachers College, Columbia University, and the National Committee on Film Forums, 525 W. 120 Street, New York 27, N. Y.
Film News—Film News Company, The Penthouse, 15 W. 38 St., New York 18, N. Y.
Film World—Ver Halen Publishing Co., 6060 Sunset Blvd., Hollywood 28, Calif.
See and Hear—Audio Visual Publications, Inc., 157 East St., Chicago, Ill.
16MM. Reporter—Andrew Publishing Company, Inc., 1819 Broadway, New York 23, N. Y.

Agencies Having Information on Films

The National Publicity Council, 130 East 22 Street, New York 10, N. Y., maintains a collection of more than 1,000 health films exclusive of medical films for use in the elementary schools. Some of the health films are reviewed in CHANNELS.

Many national agencies sponsor films relative to their fields of interest, such as, tuberculosis, heart, cancer, social hygiene, infantile paralysis, blindness, etc.

COÖPERATION IN APPRAISING SCHOOL-CHILD HEALTH

Health Appraisal of School Children is a report of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association. It points out that parents, teachers, nurses, and physicians all have a part to play in keeping the health of school children under continuous appraisal. It defines specifically the part for which each should be responsible.

Among the points stressed are the following: (a) the frequency of routine medical examination of school children may safely be reduced to once every three years provided parents, nurses, and teachers are alert to discover children in need of medical advice or treatment; (b) every school should have a medical adviser, but where physicians' services are not immediately available, an appraisal system conducted by teachers and nurses is much to be preferred to no system; (c) information the teacher has regarding the child should be shared with the doctor and vice versa.

Although the report has little that is really new, it is, nevertheless, important because it represents the common thinking of educators and physicians in what has for many years been a field of controversy and limited accomplishments. If local school authorities would build school health services on the sound foundations here set forth, the field of school health would shortly take its rightful place as one of the most effective parts of the public health program. The report is available from the Ameri-

can Medical Association, 535 North Dearborn Street, Chicago 10, Ill.

SOMETHING NEW OUT OF THE WEST

The Laboratory Section of the Washington State Public Health Association, a new affiliate of the A.P.H.A., has for more than a half year, been putting out a monthly *Laboratory Review*. Mimeographed, this is a brightly written three or four pages of news of interest to laboratory workers throughout the state. The editorial office is the Laboratory of Providence Hospital, Everett, Wash.

A MENTAL HEALTH PROJECT

In more and more communities the tuberculosis association is meeting the challenge of the large contributions to its work by the public through the annual Christmas Seal Sale by expanding its activities to other health problems as well as tuberculosis. One such recent instance is in Ulster County, New York. There an experimental mental health education project is planned by the county tuberculosis and health association with a subcommittee of the County Medical Society serving in an advisory capacity. The project will be opened with a series of 13 15 minute radio dramas entitled, "The Tenth Man" produced by the Mental Health Foundation.

DANNY'S DENTAL DATE

The Colorado State Department of Public Health has just released a film for elementary school dental education entitled "Danny's Dental Date." Produced under the supervision of Dr. Robert A. Downs, Director of the Public Health Dentistry Section, it is a 16 mm. sound and color film with a showing time of 21 minutes.

The first part of the film, done with puppets, shows Danny learning about the types of teeth and various kinds of foods recommended for dental health. Then a human Danny visits a dentist's office where a simple filling is being done while the steps of the process are carefully explained. This is designed to dispel the fear often associated with a visit to the dentist. A super-size tooth brush is used to demonstrate proper brushing technique.

The film is available for circulation in Colorado through the Public Health Library of the State Department of Public Health, 616 Colorado Building. Inquiries regarding the purchase of prints should be sent to the Director of Health Education, Colorado State Department of Public Health, Denver.

KNOW THYSELF—THROUGH HEALTH EXAMINATION

The Cook County (Illinois) Health Department has an exhibit poster and a leaflet entitled "Know Thyself," in encouragement of annual health examinations. "Age is not measured in years but in ability to live," it says. The leaflet has a very interesting graph giving the average life expectancy at birth in various periods of history. Each period is represented by the current mode of transportation of the age, prairie schooner for 1850, steam railroad for 1900, automobile for 1930, etc. An effective and simple piece of health education material.

INTEGRATING PREVENTION AND CURE

In May, 1947, the Maryland State Department of Health appointed a Health Officer Committee on the Coordination of Preventive and Curative Services whose major task was to determine the most effective means of improving and integrating the preventive and curative services of county health departments. The committee's recommendations are presented in an article, "Coördination of Preventive and Curative Health Services," in the June issue of the *Maryland Health Bulletin*. Considerable emphasis is directed toward improving physician and health officer

relationships. The expansion of prenatal clinics, the establishment of new consultation clinics, and the enlargement of laboratory services are among the recommendations. Consideration of the need for providing routine physical examinations for recipients of medical care is also suggested.

ATOMIC BOMBS

What You Should Know About the Atomic Bomb has been prepared by the Surgeon General, U. S. Army, giving medical officers and others involved, basic information about the medical aspects of the atomic bomb and its effects. The pamphlet succeeds in discussing this abstruse subject so that most persons with college chemistry and physics should be able to understand. It is available from the Surgeon General, U. S. Army, Washington, D. C., free of charge.

DEPARTMENT OF ESOTERIC FACTS

The 1946–1947 biennial report of the Duluth, Minnesota, Health Department lists as many incinerator operators as nurses on the department staff. It estimates the city's 1947 population to be about 100,000, one nurse and one incinerator operator per 15,000 population. We won't attempt to explain the significance of this fact except that it hit us in the eye. We won't even say this properly belongs in Credit Lines.

SET OF CANCER POSTERS

The Illinois State Health Department Division of Cancer Control (Springfield) is distributing a set of 15 exhibit size cancer information posters in attention calling colors. If they don't scare the public to death, they should be useful in getting it to pay attention to early signs of possible cancer.

MINNEAPOLIS HEALTH EDUCATION DEMONSTRATION

A demonstration of health education being carried on in two Minneapolis schools, one elementary and one junior high school, is now in its second year. Among the activities is a slumber room in the elementary school which is under the supervision of a committee of mothers who take turns being on duty. Children needing the rest are selected by classroom teachers, nurse, and doctor. Student health councils, school lunches, and safety committees are other devices. Some of the results of the first year's demonstration are summarized in *School Bulletin,* Minneapolis Public Schools, June 14, 1948.

BREADTH, DEPTH, AND LENGTH

Defining the object of geriatric medicine as adding depth and breadth to life, rather than mere length, July-August *Therapeutic Notes,* of Parke, Davis & Company (Detroit 32, Mich.), is a special geriatrics issue. Various articles describe the aging process, indicate the implications of an aging population, the medical and surgical aspects of geriatrics. Not the least valuable feature of the pamphlet is a 72 item bibliography on Geriatrics. *Therapeutic Notes* is distributed without charge to the medical profession.

WORTH ACQUIRING

Motion Pictures and Slides on Public Health—Is the newest film catalog including all the titles in the film libraries of the California State Health Department, California Tuberculosis Health Association, and the California Offices of the Metropolitan Life Insurance Company. Available on request from Bureau of Health Education, California State Health Department, 760 Market St., San Francisco 2.

Baby Book, New York State Department of Health—This attractive little booklet on baby care, pre-natal and post-natal, announces that "if it succeeds only in making you more at ease

with your baby, it will have achieved its purpose." There are suggestions for feeding, clothing, and enjoying your baby, among others. Done in good printing and pleasing pastel colors.

"Medical Care for the Individual" and "The Issue of Compulsory Health Insurance": A Review of the Report of the Brookings Institution by Michael Davis and Dewey Anderson, has been printed for the use of the Senate Committee on Labor and Welfare, at the request of Senators James E. Murray and Claude Pepper, both members of the Subcommittee on Health. Available from the U. S. Government Printing Office, Washington, D. C.

ANNUAL REPORTS

National Tuberculosis Association 1947–1948—In an attractively produced pamphlet, dedicated to Kendall Emerson, M.D., the managing director for 20 years beginning in 1928, this report is a forthright listing of the many areas of activity which this Association carries on. Throughout its pages one finds an awareness of the close relationship between general public health and tuberculosis activities. There is an awareness too of the public responsibility inherent in an agency that, with its locals, annually receives nearly $20 million from many millions of the general public. This annual report is in a sense an accounting of stewardship written so that the millions of supporters may feel a share in the program. The report recommends that:

a. Every person of 15 years or over have a chest x-ray periodically and that present inadequate x-ray facilities be increased.

b. 33,000 additional beds for tuberculosis are needed and many of the present beds should be replaced.

c. A tuberculosis control officer should be on the staff of every state and large city or county health department.

d. More local health units with qualified full-time personnel should be created.

e. Tuberculosis activities of WHO should be expanded.

The Regional Hospital Plan: The Second Year's Experience—Because the Rochester (New York) Regional Hospital Plan is one of few such plans yet in operation, the second year's experience of this one should be useful to everyone who has interest in hospital, health center, or health unit development. Council of Rochester Regional Hospitals, 133 East Ave., Rochester 4, N. Y.

Oklahoma Merit System Council Annual Report—For the third successive year Credit Lines calls your attention to this annual report as an excellent graphic illustration of the workings of a merit system. Oklahoma Merit System Council, Oklahoma City.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Racial Variation in Immunity to Syphilis—*By C. N. Frazier and Li Hung-Chiung. Chicago: University of Chicago Press,* 1948. 122 pp. Price, $2.50.

This thoughtful monograph consists of a comparison of the manifestations of syphilis in Chinese patients of the clinic of the hospital of Peiping Union Medical College, and white and Negro patients attending the Johns Hopkins Hospital syphilis clinic. It is carefully documented, and the data are analyzed with the usual statistical tests of significance.

While this study substantiates some of the characteristics of syphilis in the Chinese which have long been accepted on inadequate evidence, such as the frequency of cutaneous and skeletal lesions of both the early and late stages, and the infrequency of general paresis, it quite discredits others, such as the rarity of tabes dorsalis and cardiovascular lesions among the Chinese.

It has long been known that later manifestations of syphilis are more mild in the female than in the male of the white and Negro races. Frazier and Li point out that, with one notable exception, the pattern of late manifestations in both sexes in the Chinese resembles that of the females of the other two races. This is correlatable, in the authors' opinion, with the anthropological evidence of the relative femininity of the Chinese male, according to western standards. This in turn is suggestive of the influence of the female sex hormone in the localization of late syphilitic lesions, rather than the protective effect of pregnancy. The exception to the feminine localization of late lesions in the Chinese was tabes dorsalis. This syndrome appeared in the Chinese with the same frequency as in the white, while the Negro was affected much less frequently than either of the other races. The authors point out that chronic dietary deficiency of the poor of Peiping, which could have led, through deficiencies in the B-complex vitamin, to degenerative lesions of the posterior columns of the spinal cord, or possibly have influenced localization of the spirochete in these tracts. No evidence was adduced to settle this point.

The monograph is recommended as deserving of careful study by those interested in syphilology and as an example of the information to be derived from thorough study of clinic records.

JAMES H. LADE

Dairy Bacteriology—*By B. W. Hammer. (3rd ed.) New York: Wiley; London: Chapman & Hall, Ltd.* 1948. 593 pp. Price, $6.00.

The 18 chapters of easily read type upon a good grade of paper carry 49 figures from photographs having a pertinent relationship to the text; 1,303 references, distributed at the close of each chapter, are representative of topics useful to the student of, or worker in, dairy products. Forty-seven useful pages to the public health officer consider "Spread of disease through milk and milk derivatives." One paragraph on milk-borne rabies with its 4 references provides the information on a question which is not infrequent in presenting itself where rabies, dogs and cattle can get together.

The reviewer experienced the unusual in having his appetite whetted during the reading of a textbook on bacteriology! 73 pages on cheese; 77 pages concerning butter; chapters on ice cream,

milk, cream, cultured milk; all written in a way that assures the reader that care in the compounding of quality ingredients accomplishes a safe and satisfying variety of food.

"Bacterial counts on milk" is a sensible presentation concerning routine and research counts. Included are fair, non-prejudiced comments for and against the plate method and the microscopic method. Differential media for detection of proteolytic, acid-forming, lipolytic or other types of organisms are of special interest in investigations on dairy products.

This book becomes an important addition to the reviewer's library pertaining to public health bacteriology. It is a readable reference rather than simply "a textbook." R. V. STONE, SR.

Report of the Sanitary Commission of Massachusetts 1850—*By Lemuel Shattuck and others. Cambridge: Harvard University Press*, 1948. 321 pp. Price, $4.50.

This historic document, "one of the most remarkable documents—perhaps the most significant single document—in the history of public health," has now been reprinted in a facsimile edition by the Harvard University Press with the coöperation of "The American Public Health Association, the Massachusetts Public Health Association, the Harvard Graduate School of Public Health, the Massachusetts Department of Public Health and the Boston Health Department."

Lemuel Shattuck—1793–1859—was a bookseller and publisher of Boston who was largely responsible among other things for the establishment of the Massachusetts system for the registration of births, deaths, and marriages. The *Report* is now republished for the first time since its original release in 1850. The foreword by Professor Winslow for this facsimile edition is a superb summary of the place which the *Report* has acquired in the century since the appointment of the Commission. The foreword and the *Report* itself should be required reading in every graduate course of public health, in North America. This volume for decades has been a highly prized collector's item, but is now available in a splendid edition for which the Harvard University Press is to be congratulated. It belongs on the shelf of every library. (See symposium on Lemuel Shattuck in this issue.) REGINALD M. ATWATER

Standard Methods for the Examination of Dairy Products—*By the American Public Health Association. (9th ed.) New York: A.P.H.A.*, 1948. 373 pp. 37 illus. Price, $4.00.

The ninth edition of this laboratory manual for standard procedures for the examination of dairy products contains many advantages over previous editions. It has additional values for the laboratory worker.

The reference and cross-reference are of real benefit in enabling the laboratory workers to refer to directions and instructions without doing a lot of unnecessary reading.

The detailed and complete index makes it easier to find what one is looking for.

The introduction of new methods such as the Resazurin procedures for determining extraneous matter in dairy products, methods for detecting pathogenic bacteria in cheese, and methods for the bacteriological examination of stabilizers are worthy contributions.

The absence of highly technical terms makes the volume more interesting to the beginner, enabling him to grasp the meaning of things more readily.

The grouping of material and suggestions useful to administrative officers in one chapter is a real contribution and a decided improvement.

The elimination of repetition in comparison of methods and standards makes

the edition superior to others, enabling the reader to follow through without the necessity of reading some parts over and over again. O. A. GHIGGOILE

A Catalogue of Certified Professional Motion Picture Films—*Presented as a Service of Academy-International of Medicine. (2nd ed.) Topeka, Kans.: Department of Audio-Visual Aids,* 1948. 110 pp.

This catalogue, the second edition, of the Academy-International of Medicine, is a valuable contribution to those within the Academy's Fellowship and the profession at large. To a limited extent it contributes to the general field of documentary films and can well be studied with a view of adaptation, under proper auspices, to a wider audience.

The Audio-Visual Service for Fellows, briefly outlined in the report, provides, free of charge, projector and accessories equipment. It also provides a list of recognized professional motion picture production technicians and laboratory assistants that may be called on for all production requirements or technical aid.

The report announces the following additional services: Electronic-Sound and Motion Pictures, (an entirely new method of producing and projecting motion pictures); Sound and Slidefilm (strip-film) service; Synchronized Sound-on-disc slidefilm projection and accessories service; Photoduplication service, and others.

The catalogue lists films under 38 groupings, beginning with Anatomy and ending with Radiodontia. For the laity (first aid and health education, dental education for school children and adults) about 225 subjects are listed.

Apparently no attempt has been made to evaluate the films, since only the subject and source are given. However, it is stated that the films listed have been approved, authorized, certified, passed or reviewed by a duly organized committee, or sponsored by a professional organization or an institution. These agencies are listed and coded for references.

Of particular interest is the report's announcement that their Audio-Visual Aid Department has completed arrangements for the establishment of a loan library of motion pictures and slidefilms for which subjects are now being selected. The public's suggestions are requested to assist in the selection of preëminent films to form the nucleus of this library.

KENNETH D. WIDDEMER

The Machinery of the Body—*By Anton J. Carlson and Victor Johnson. (3rd ed.) Chicago: University of Chicago Press,* 1948. 639 pp. Price, $4.50.

This elementary textbook of human physiology has become and continues to be a classic in its field. The new book differs from the 2nd edition (1941) in the extensive consideration of the results of wartime experience and research. This material as that of previous editions is approached in the healthy spirit of critical inquiry, entirely free from any trace of the currently popular pose of awed amazement currently, popular in dealing with the facts of elementary science. Only in a few sections of the book does the text exceed the demands of an elementary presentation, but frequent footnotes indicate advanced reading on every subject considered. The parts which have received amplification beyond the basic demands of the subject are clearly marked and may be omitted without destroying continuity of subject treatment.

The mechanisms of the human body are covered in 15 chapters, followed by a selected list of references and an index which is unusually complete for a book of this type. The exposition is clear and brief throughout, and style and typography combine to facilitate reading. The subject matter is clarified by the inclusion of over 200 illustra-

tions, most of which are of a simplicity designed to aid understanding. Even the 15 tables used fail to abet confusion in the manner usually achieved in textbooks on science.

Surveying this book as a whole, there is little that one can find to criticise. The occasional relapse into the use of slang, the evanescent idiom of the current moment, is to be regretted. Replacing the precision of conventional forms of English expression with the generalities and changing connotations of the jargon of those who know no better seems to be a doubtful aid to clarity. However, this is probably a personal opinion and in any case this excellent treatment of the basic facts of human physiology sins but slightly in this regard.

DONALD YOUNG SOLANDT

How Laymen Cut Medical Costs—*Public Health Institute. Chicago: Lakeside Press,* 1948. 35 pp.

This small book describes chronologically the remarkable growth of the Public Health Institute of Chicago, a nonprofit venereal disease clinic founded in 1919 to bring to the civilian population some of the procedures developed by the army's educational and medical campaign against venereal disease infection in the first World War. Except for a decline in services during the depression years, the clinic expanded steadily until its eventual transfer to the Medical School of Northwestern University in 1947. The description of the successful campaign waged by the Institute against the prejudice and false modesty which prevailed during the early years of its development is interesting and the results bear witness to the efficacy of health education coupled with available and affordable medical care.

The title may lead one to believe that the book deals with general medical care rather than with the control of venereal disease alone. On several occasions in the text, the accomplishments of the clinic, under voluntary auspices, in treating venereal disease are used as an argument against governmentally sponsored prepayment plans for comprehensive medical care, a conclusion which is unwarranted on the basis of the limited program offered by the Institute. The Institute itself received federal funds later in its history and was able to extend its services to many who could not pay even its low fees for the treatment of venereal disease.

The argument that the Institute points the way to a method of providing low cost comprehensive medical care is largely refuted by the refusal of the Chicago Medical Society of its offer to them to own, manage, and control the clinic, and to extend its field of operation to every disease. In fact, the eventual transfer of the Institute to the Medical School of Northwestern University resulted from the failure to establish a harmonious relationship between the organized medical profession and the clinic.

HENRY B. MAKOVER

New York City's Baby Book—*A Handbook for Parents. New York City: Department of Health,* 1947. 136 pp. Free.

New York City's Baby Book is one of the most practical "guides" for parents that has been written. It covers the first two years of the baby's growth and development. Simple words and short sentences clearly tell parents (father is included) what they want to know. Emphasis is put on the point that babies are individuals and behave as such. The authors will give parents who use the book a sense of relief from tension in the business and pleasure of raising a baby. At the same time there is abundant counsel about the baby's need for love, food, and training. The handbook has combined scientific information with common sense.

DAVID B. TREAT

Occupational Pamphlets—An Annotated Bibliography—*By Gertrude Forrester. New York: H. W. Wilson Company,* 1948. 354 pp. Price, $2.50.

Publications on occupations are coming off the press in increasing numbers. This makes it difficult for librarians, counselors, and job seekers to keep abreast of the vocational literature (mostly pamphlets) prepared by bureaus of vocational guidance, commercial publishers, professional and trade organizations, governmental agencies and others. Gertrude Forrester's *Occupational Pamphlets: An Annotated Bibliography* represents a considerably enlarged edition of her 1946 volume entitled: *Occupations: A Selected List of Pamphlets.*

The new bibliography is divided into two main parts:

1. Pamphlets published in series, arranged alphabetically according to the publisher of the series.

2. An annotated bibliography, which includes essential information on each pamphlet.

Altogether 3,000 pamphlets by 360 publishers are listed. Among them are 236 pamphlets issued by professional, trade, and national organizations. About these, the author says: "The reader may confidently rely on pamphlets prepared by professional organizations with professional codes of ethics. It would be desirable to have more from such sources. . . ." Several of the publications of the Committee on Professional Education of the American Public Health Association are included in the annotated bibliography.

In selecting the pamphlets to be included in this bibliography the author used the following "Criteria of a good occupational pamphlet": 1. authenticity; 2. objectivity; 3. recency; 4. suitability; 5. availability; 6. information not found elsewhere; 7. references to further reading; 8. style; 9. format.

The reader will also find a publishers' directory, a chapter for librarians and counselors on the filing and indexing of occupational pamphlets and suggestions on the use of the bibliography in this useful reference book.

FRANZISKA W. RACKER

Eating for Health—*By Pearl Lewis. New York: Macmillan,* 1948. 121 pp. Price, $2.25.

This book is good reading and worth keeping for reference. College students majoring in foods and nutrition and beginning medical students should find helpful the author's clear and brief explanations, the index, and the carefully selected bibliography.

While the author recognizes that "eating has become one of the main pleasures of life," she is almost too generous to the ordinary person when she states that, "we now eat to maintain health or to regain it." This reviewer doubts seriously whether many persons select food *primarily* to maintain health. However, an increasing number of individuals wish to plan meals intelligently, and this book can help such thoughtful men and women.

The chapter on "Food" is especially well organized and clearly presented. In twenty pages the author explains simply and clearly how food is used by the body, and lists food sources of the vitamins and minerals.

Miss Lewis describes particularly well the structure of the body and the function of its parts. The next chapter, "Nutritional Processes," is more difficult reading because of the necessity for using technical language. This, however, is the chapter which the college student may find most helpful.

In the chapter labeled "Dietary Plans," dietary and meal plans for each age group are outlined. Height-weight tables for children as well as for men and women are a convenient addition to the book.

The last chapter, "Foods for Good

Nutrition," considers classes of foods. Not only is the nutritive value pointed out but appropriate cookery methods, season and good storage practices are indicated.

The title of this book, "Eating for Health," is not a glamourous one nor, we fear, will it appeal to the ordinary man who reads only as he browses. Those interested in health, however, will like the title. A number of those who have been led astray by faddists will be attracted to it and will benefit along with many other people from reading this new book by Pearl Lewis.

PAULINE MURRAH

Basic Principles of Ventilation and Heating—*By Thomas Bedford. London: H. K. Lewis & Company, Ltd.,* 1948. 401 pp. Price, 25s. net.

The scope of this book is wider than might be suggested by its title. Its first nine chapters deal with the "basic principles" of the relations of the thermal environment to the health and comfort of man and its last twelve chapters with the "basic principles" of the art of air-conditioning. Dr. Bedford has an unusual familiarity with the literature and practice on both sides of the Atlantic, combined with excellent judgment and discrimination. The first part of the volume tells the engineer what he should know about the fundamental physical and physiological problems involved, while the second part tells the health expert what he needs to know about the work of the heating and ventilating engineer. The book is strongly recommended to both health officers and sanitarians as the best brief summary of this field of public health now available.

C.-E. A. WINSLOW

Health Services in England—*By R. C. Wofinden. Baltimore: Williams & Wilkins,* 1947. 186 pp. Price, $2.50.

Health Services in England was awarded a prize for ". . . the best essay on the treatment of the sick poor of this country and the preservation of the health of the poor . . ." In true British fashion neither the title nor the award gives one any indication of the scope of the book nor of the genius of the author in his treatment of the material. Dr. Wofinden has accomplished one of the most difficult feats in writing, that of compressing a mass of material without losing its vividness or its significance. The growth and development of the various health services in England come alive in this small book.

The introduction summarizes the growth of the health services in England from the 16th century to the beginning of the last war, including a number of acts dealing with social conditions as well as those concerned primarily with health. Throughout the whole book the author shows a keen appreciation of the interrelationship of social and economic conditions with health conditions. Following the introduction, the book is divided into chapters on The Treatment of the Sick, The Preservation of Health, Achievements of the Health Services, The Future, and a Postscript on the National Health Service Act of 1946.

In the space of three pages, Dr. Wofinden describes the growth of the general practitioner services, including the district medical service, and introduces philosophical points pertaining to treatment of the sick under the various schemes that have been developed since the first Poor Law Amendment Act of 1834. He points out some of the particularly successful schemes such as the one worked out in the Highlands and Islands of Scotland. He then describes the formation and development of the nursing service and calls attention to crucial problems of the present day in relation to the survival of voluntary organizations.

Under "Achievements of the Health Services," the author gives due consider-

ation to the many factors in the educational and social fields which have influenced the improvement of health of the people of England along with advancements in medicine and improvement in the health services.

"The Future," Chapter V, was written before the passage of the 1946 National Health Act and gives a good background for the reactions which the present Act has met. It also raises some nice points of philosophy regarding medical care which should interest American readers.

A postscript has been added describing briefly the provisions of the National Health Service Act of 1946. A very clear summary of its main provisions is given and there is some discussion of the controversial features. The author points out that curative and preventive medicine which for some time have been bound together in England will be separated under the new Act, and raises the question as to how close liaison is to be maintained. He mentions a few of the objections of the medical profession to the Act but as a health officer he is more concerned with the possible effect the Act will have on preventive medicine in Great Britain.

The reviewer is tempted to reproduce the whole book in the review, but as that is impossible, recommends that the book be read by all those interested in health services in England and their implications for health services everywhere. It is also recommended reading for those who take delight in a skillfully constructed piece of writing in which crucial facts have been selected and woven together with thought provoking comments. MARGARET G. ARNSTEIN

Frontier Doctor—*By Samuel J. Crumbine. Philadelphia: Dorrance,* 1948. 284 pp. Price, $3.00.

Public health as a new profession needs the authentic record of its pioneers that the traditions may be soundly based. None of our older generation has had a more colorful career than Samuel J. Crumbine, as witness the stories about his original campaigns against spitting, against the fly, and the common drinking cup. Even the *New Yorker* has chosen him to be profiled.

This combination of a dramatic career and the ability of a raconteur is rare. The story is very readable and revealing of the early days in Pennsylvania and Kansas. It is sure to fire the imagination of young people and should be on the reading shelves in high schools and colleges for recruiting purposes. Those already in public health will be grateful to Dr. Crumbine for the person he is and for the fascinating story he has told.

REGINALD M. ATWATER

The Diabetic's' Handbook—*By Anthony M. Sindoni, Jr., New York: Ronald Press,* 1948. 194 pp. Price, $3.00.

With the publication of this book, another is added to the extensive list of handbooks designed to teach the diabetic how to care for his disease and cooperate with his physician. This handbook's range of topics is equally as extensive as that of several others recently reviewed; its scope is wider than that of some other handbooks on the same subject. The presentation is unusual in its emphasis upon the prevalence of diabetes and some of its public health aspects.

In arrangement, the book follows a logical sequence. The first section, questions and answers, might serve as a survey of the substance of the whole book. Several observations on this section seem worthy of comment:

1. The emphasis on routine examinations for diabetes, in the absence of symptoms, is valuable in its implications for general control measures (p. 4).

2. From experience in testing large groups of normal individuals, we must take exception to the statement that the blood sugar of normal persons "never" rises above 80 to

120 mg. per cent, even after eating (p. 3).

3. The figure on the number of living diabetics is understandably hazy; more prevalence studies will allow a better estimate.

4. If all of us were able to concur entirely with the author's blame of "indiscreet dietary habits" for the large number of diabetics, the chances for prevention would be much more assured (p. 6). At any rate avoidance of over-eating is a good hygienic principle.

Generally speaking, this handbook lacks the compactness and brevity as well as the excellent illustrations of practical techniques that contribute to the appeal of some other manuals. However, its thorough treatment of the essential phases of diabetic self-care and its easy reference arrangement make a contribution to diabetic literature.

HUGH L. C. WILKERSON

Insect Pests—*By William Clunie Harvey (2nd ed.). London, New York: Hoeber,* 1948. 347 pp. 27 illus. Price, $5.00.

This handbook is written especially for "authorities and individuals who have the responsibility of insect pest control placed in their charge."

It is divided into two sections. In the first is described the life history, bionomics, and control of insect and other arthropodal species which cause or carry disease, or are household or economic pests. The second and larger part deals with principles and practices of disinfestation in homes, commercial establishments, ships, moving vans, furniture, etc. Specimen forms, records, and propaganda leaflets are shown in the appendix.

While of general applicability in the field of insect control, this book is designed primarily for British supervisors and operators. Thus it deals with pest problems of England, with types of English construction, English brands of insecticidal equipment and materials, and with English pest control laws and regulations.

The volume contains some inconsistencies and errors. On page 68, it is stated, relative to mosquitoes, that "in the case of some species, the habit of blood-sucking is said to be common to both males and females." Five pages later, the authors claim that "The most important characteristic of the entire mosquito family is that only the females of all species suck blood. . . ." Wherever the scientific designation of the oriental rat flea occurs in the book—even in the index—the specific name is misspelled.

The chapter on "Gaseous Fumigants" is excellent in coverage and detail. DDT and Gammexane, the latter a British product, are treated together in another chapter—but chlordane, toxaphene, and other new insecticides are not mentioned. The book is indifferently illustrated. There is an index but no bibliography.

JUSTIN M. ANDREWS

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCE OR RETREAT FOR PRIVATE FAMILY SERVICE. Bertha Reynolds. New York: United Office and Professional Workers of America, CIO. 32 pp. Price, $.50.

ANESTHESIA—PRINCIPLES AND PRACTICE. Alice M. Hunt. New York: Putnam, 1948. 142 pp. Price, $2.60.

THE BASIS OF CHEMOTHERAPY. Thomas S. Work and Elizabeth Work. New York: Interscience, 1948. 435 pp. Price, $6.50.

BLOOD'S MAGIC FOR ALL. Public Affairs Pamphlet No. 145. Alton L. Blakeslee. New York: Public Affairs Committee, Inc. 32 pp. Price, $.20.

BLOOD CLOTTING AND ALLIED PROBLEMS. Transactions of the First Conference February 16–17, 1948. New York: Josiah Macy, Jr. Foundation, 1948. 179 pp. Price, $3.25.

THE CHILD IN HEALTH AND DISEASE. Clifford R. Grulee and R. Cannon Eley. Baltimore: Williams & Wilkins, 1948. 1006 pp. Price, $12.00.

CORNELL CONFERENCES ON THERAPY. Vol. III. Edited by Harry Gold. New York: Macmillan, 1948. 337 pp. Price, $3.50.

THE CREATIVE NURSERY CENTER. Winifred Y. Allen and Doris Campbell. New York: Family Service Association of America, 1948. 171 pp. Price, $2.75.

EXPERIMENTAL IMMUNOCHEMISTRY. Elvin A. Kabat, and Manfred M. Mayer. Springfield, Ill.: Thomas, 1948. 551 pp. Price, $8 75.

FACTORS REGULATING BLOOD PRESSURE. Transactions of the Second Conference January 8–9, 1948. New York: Josiah Macy, Jr. Foundation, 1948. 170 pp. Price, $2.75.

HOW TO LIVE LONGER. Justus J. Schifferes. New York: Dutton, 1949. 243 pp. Price, $3.00.

HYGIENE, MANUAL OF PUBLIC HEALTH. J. R. Currie and A. G. Mearns (3rd. ed.). Baltimore: Williams & Wilkins, 1948. 695 pp. Price, $9.00.

INDUSTRIAL HYGIENE AND TOXICOLOGY. Vol. I Frank A. Patty, Editor. New York: Interscience, 1948. 517 pp. Price, $10.00.

AN INTRODUCTION TO PHYSICS IN NURSING. Hessel Howard Flitter. St. Louis: Mosby, 1948. 179 pp. Price, $3.25.

IRREGULAR DISCHARGE: THE PROBLEM OF HOSPITALIZATION OF THE TUBERCULOUS. Washington, D. C.: Superintendent of Documents, U. S. Gov. Ptg. Office, 1948. 64 pp. Price, $.20.

A PROPOSED HEALTH FILM PROGRAM FOR AMERICA. Prepared by The World Today, Inc., Film Producers. New York: The World Today, 1948. 35 pp. Price, $1.00.

PSYCHIATRY FOR THE MILLIONS. Benzion Liber. New York: Frederick Fell, 1949. 297 pp. Price, $2.95.

PSYCHOSOCIAL DEVELOPMENT OF CHILDREN. Irene M. Josselyn. New York: Family Service Association of America, 1948. 134 pp. Price, $1.75.

SANITATION IN SOUTH AFRICA (Applicances Illus.) John H. Moore. Cape Town, So. Africa: Jata & Co., 1948. 425 pp. Price, 35 s.

TEXTBOOK OF ATTENDANT OR PRACTICAL NURSING. Katherine Shepard (3rd ed.). New York: Macmillan, 1948. 386 pp. Price, $4.25.

YOUR COUGHS, COLDS AND WHEEZES. Joseph D. Wassersug, New York: Wilfred Funk, 1949. 268 pp. Price, $2.95.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

ATLANTA, GA. HEALTH DEPARTMENT. Annual Report 1947. J. F. Hackney, Director of Public Health. Atlanta, Ga.: City Health Department. 27 pp.

BOSTON'S HEALTH IN 1947. 67th Annual Report. John H. Cauley, Commissioner. Boston, Mass.: City Health Department, 1948. 60 pp.

BRITAIN'S HEALTH IN WAR AND PEACE. Reference Division I.D. 872, August, 1948. New York: British Information Services.

BALTIMORE, MARYLAND. 133RD ANNUAL REPORT OF THE DEPARTMENT OF HEALTH, 1947. Baltimore, Md.: City Health Department. 343 pp.

FORECASTS OF THE POPULATION OF THE UNITED STATES, 1945–1975. U. S. Department of Commerce, Bureau of the Census. Washington, D. C.: Superintendent of Documents, U. S. Gov. Ptg. Office. 113 pp. Price, $.45.

MARYLAND WATER POLLUTION CONTROL COMMISSION. First Annual Report 1947. Baltimore, Md.: Water Pollution Control Commission.

MINNESOTA LEGISLATIVE RESEARCH COMMITTEE. County Unit Health Plan. Publication No. 14. Minneapolis, Minn.: State Department of Health, 1948. 25 pp.

ORANGE, N. J., CITY DEPARTMENT OF HEALTH. Annual Report 1947. 43 pp.

PALO ALTO'S HEALTH IN 1946 AND 1947. Palo Alto, Calif.: City Department of Health. 44 pp.

PLAINFIELD, N. J., ANNUAL REPORT OF THE CITY FOR 1947. Plainfield, N. J. City Department. 68 pp.

A PLANNING PROGRAM FOR THE CAPITAL OF COSTA RICA. Anatole A. Solow. Washington, D. C.: Pan American Union, 1948. 61 pp.

PUBLIC HEALTH IN NEW YORK STATE—1946. 67th Annual Report of the State Department of Health. Albany, N. Y.: State Department of Health. 101 pp.

SPRINGFIELD, MASS. 66TH ANNUAL REPORT OF THE DEPARTMENT OF PUBLIC HEALTH 1947. Springfield, Mass.: City Department of Health. 48 pp.

SURVEY REPORT — DEPARTMENT OF PUBLIC HEALTH — PITTSBURGH, PA. Washington, D. C.: Public Health Service, 1948. 385 pp.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

MAN requires food to maintain life, but food is not easily obtained. For the great majority of the world's population the Biblical injunction, "In the sweat of thy face shalt thou eat bread," is still true. When crops fail or war breaks out this precarious situation is easily upset, resulting in malnutrition, famine, and disease. The recent war necessarily turned the attention of lay and medical groups to problems of food and nutrition. Numerous publications in the medical and public health literature attest this interest.

DIET OF NORWEGIAN FAMILIES DURING 1942–1945 [1]

From 1942 to 1945 Axel Strøm investigated the diets of families connected with two industrial concerns in Oslo (Electric Bureau and Freia) as well as several families in Arendal and Hisøy. At the Electric Bureau, five different series were studied from January, 1943, to May, 1945. At Freia there were three investigations from December, 1942, to May, 1944, and during November-December, 1943, one investigation was carried out in Arendal and Hisøy. A total of 102 families participated in these studies. For the most part these families were small and had few children. In Arendal and Hisøy two orphanages were also included in the investigation.

Each investigation period lasted 14 days. During this period a daily account was kept of the food purchased and received, as well as of the food taken out of the house. The food supply was weighed at the beginning and at the end of each period. Cathcart and Murray's scale was used for computation. Atwater's figures, 4-9-4, were used in calculating the caloric intake. Two per cent was allowed for waste in housekeeping, except in the orphanages where wastage was fixed at 10 per cent.

By comparison with pre-war conditions, the diets of the investigated families were characterized by a marked decrease in the consumption of meat, whole milk, cream, cheese, eggs, margarine (but not butter), fruit, berries, sugar, and coffee. An increase was noted in the consumption of skimmed milk, though this was not enough to compensate for the drop in the consumption of whole milk. Cereal consumption was somewhat increased, while that of potatoes, fresh vegetables, and fish was considerably greater.

In the various investigation series the mean caloric values of the diets were found to be 3,046, 3,206, 2,913, 2,905, 2,900, 2,750, 2,708, 2,708, 2,603, and 2,565 calories. The total average was 2,849 calories. Except for the first two series, all these figures are lower than those for self-supporting Norwegian families before the war.

The protein content of the diets varied between 82 and 109 gm., with an average of 93 gm. The fat content varied from 61 to 82 gm. and averaged 71 gm. The range of variation for carbohydrates was from 372 to 482 gm. with a mean of 429 gm. In comparison with previous Norwegian studies, the intake of fats was low, while that of protein and carbohydrates was satisfactory. The low caloric content of the diets already noted was attributed essentially to an inadequate fat intake.

In the various series the gross daily calcium content ranged from 1.12 gm.

to 1.53 gm. per man value, with an average of 1.32 gm. for the total series. The mean intake of phosphorus in all the investigation series was 1.95 gm. per man value per day, and varied between 1.74 and 2.22 gm. The iron content varied from 12.90 to 16.28 mg., with a mean of 14.46 mg. These values are regarded as satisfactory for calcium and phosphorus, but too low for the intake of iron.

The gross vitamin intake per man value per day was:

Vitamin A: average, 4,911 I.U.; lowest, 2,011 I.U., highest 10,029 I.U.

Vitamin B: average, 720 I.U.; lowest 616 I.U.; highest, 848 I.U.

Vitamin C: average, 98 mg.; lowest, 40 mg.; highest, 193 mg.

Vitamin D: average 1,107 I.U.; lowest, 525 I.U.; highest, 1,879 I.U.

The author considers the average vitamin consumption satisfactory, but points out the vitamin intake differed widely with various families, and it is more than likely that some families had less than the requisite amount. This applies particularly to vitamin A.

Strøm is aware that the number of families involved in these studies was small, yet he feels that the findings give a rather good picture of the diet of families in Oslo during the war. Loss of weight was frequent, but clearly defined deficiency diseases were rare. There was, however, a certain tendency to anemia, and a mild degree of night blindness prevailed.

THERESIENSTADT ANEMIA [2]

More drastic effects of malnutrition appeared among concentration camp inmates. Pick and Salus describe an unusual kind of anemia observed in the Theresienstadt concentration camp. Chronic malnutrition prevailed in the camp and the authors regard chronic protein deficiency as the most important factor in the causation of this anemia. The condition developed spontaneously or following other types of anemia. In contrast to other deficiency anemias, such as hypochromic anemia due to lack of iron or hyperchromic anemia due to deficiency of the antianemic factor, the Theresienstadt anemia was characterized by orthochromia. The authors suggest protein deficiency anemia as the most suitable name for the condition.

NUTRITIONAL VALUE OF BARK [3]

In time of famine desperate people turn to unusual sources of nourishment. The practice of eating bark bread, that is, bread mixed with the bark of Coniferae, has prevailed in the more remote northern areas of Finland for hundreds of years. During the famines of 1695–1697 and 1867–1868, hunger edema was reported to be widely prevalent in southern Finland, but was apparently absent in the north of the country. Similarly during 1918, hunger edema was common throughout Finland except in those northern areas where bark bread was eaten. From this evidence Adlercreutz infers that the bark of Coniferae may be of nutritional value and suggests further study.

DIET AND DISEASE IN THE SUBARCTIC [4]

A provocative note on the relation between diet and disease is furnished by A. C. Duncan who has spent 14 years providing medical care for the 1,500 to 2,000 people who make up the population of Dawson City, Yukon, and the surrounding area. As this population is practically isolated, it has been virtually impossible to obtain medical attention from some other professional source.

Although the population contains some 350 children under the age of 14, Duncan states that he has not seen any cases of acute rheumatic fever. Similarly, he claims not to have seen nephritis in any of its stages. Yet he reports a normal incidence of acute tonsillitis and upper respiratory infec-

tions. Duncan feels that these observations are in some way related to the diet commonly consumed by the residents. The character of the diet is determined by the geographical situation of the area. Foodstuffs such as sugar and cereals that must be transported over considerable distances are expensive and not easily available. On the other hand, meat (caribou, moose, rabbit), and fish can be obtained locally in almost unlimited amounts. As a result the diet of the inhabitants contains a large amount of animal protein.

While one may be sceptical of the author's attempt to link diet and disease, the facts which he reports—the absence of rheumatic fever and nephritis in this population—certainly merit attention.

THE HYGIENE OF MILK IN FRANCE

In certain European countries, which in the past have tended to overlook the problems of food sanitation, the present food shortage has led to a recognition that these questions require urgent attention. In France the hygiene of milk has recently been a focus of critical discussion. Thieulin[5] has given a general analysis of the problem, pointing out that its solution depends on a variety of social, economic, and technical factors. Thus the public must be educated to demand milk produced under hygienic conditions and of good quality, and the producer must be given a premium for quality production. At the same time, the consumer must also be prepared for the possibility of a resulting price increase. More specifically the problems of bovine tuberculosis and streptococcal mastitis must be solved. For this a sanitary inspection system is needed.

Guittonneau[6] points out that some improvement had already set in prior to World War II. A government decree of April 26, 1939, had incorporated demands raised at the Hygiene Congress of 1937. These included registration of the temperature of pasteurization, absence of pathogenic organisms, a maximum of 100,000 organisms per ml. of liquid milk, and that milk be sold only in sealed bottles. The war and the German occupation reversed this trend and led to a deterioration of such supervision as had existed. As soon as liberation was a reality, steps were taken to remedy the unhygienic and inferior quality of the French milk industry. In this connection Guittonneau insists on the employment of the phosphatase test, testing for *B. coli,* and a count of the total number of organisms. Of equal importance is the problem of seeing that bottles are disinfected and the milk adequately refrigerated.

J. Verge[7] presents some interesting data on the presence of tubercle bacilli in milk and milk products. He states that in France human tuberculosis of bovine origin is rare. Thus, among 1,726 cases of tuberculosis 94.9 per cent were of human type, 3.24 per cent were bovine, and 1.85 per cent were of indeterminate type. Nevertheless, because the tubercle bacilli are eliminated in transitory fashion, it is absolutely necessary that the milk be pasteurized and barns and stables supervised. In this connection Verge reports on the testing of milk from human and bovine tuberculous sources. Among female patients the milk of 10–12 per cent was found infected, and in cows 7.78 per cent. Tubercle bacilli have also been found in cream, butter, and cheese, although not in dried milk. It has been observed that the bacilli can effectively resist temperatures of 60°–63° in the manufacture of condensed milk. Verge emphasizes the obvious need for strict enforcement of pasteurization and sanitary inspection.

THE PROBLEM OF BREAD IN BRAZIL[8]

Though Brazil did grow wheat in the past, cultivation of this grain does not

occupy an important place in Brazilian agriculture at present. Because of the international trade situation not much wheat is imported. At the same time large numbers of the Brazilian people, according to Da Silva Mello, live in a state of chronic malnutrition. For this reason he has devoted himself to the problem of producing a bread of superior quality utilizing materials grown in Brazil.

Bread making experiments have been carried on by Mello, using wheat mixed with rice, maize, or manhioca flour. Recognizing the value of skimmed milk, bread has been made with 15 per cent rice flour added to wheat, and skimmed milk substituted for water. The result has been bread of fine quality. Brazilians, however, are not accustomed to the flavor of such a bread. Bread baking experiments have also been made with other flours, for example, from Cajú-chestnuts, Pará chestnuts, and soya beans. Nevertheless, the problem of providing a good nutritious bread which is not too expensive has not been solved.

De Cunto[9] discusses the nutritional significance of the soya bean, pointing out that it is a product of national importance in Brazil. Its nutritive value is due in considerable measure not alone to its protein content but rather to its glycine content. It has been shown that by mixing 10 per cent soya flour with corn, a tasty bread of higher nutritive quality can be obtained. This flour mixture (in a 50 per cent proportion) has also been used for biscuits with favorable results.

FOOD AND NUTRITION IN VENEZUELA[10]

Early in 1948 Velez Boza published an interesting and comprehensive study on the nutrition of the Venezuelan people. The subject is considered from a variety of viewpoints: historical, statistical, clinical, and biochemical. Boza deals with food production in the country and gives a classification of native and imported vegetables that are of value as food resources. There is also a complete compilation of all the Venezuelan laws from 1589 to 1945 that have been concerned with food and nutrition. Boza calls attention to the fact that the nutritional problems of the Venezuelan population vary considerably depending on the geographic area, whether it is the coastal zone or the Andean region. In all areas, however, there is need for guidance and education in nutrition. Furthermore, there is urgent need in Venezuela for the improvement of food technology, and for the provision of adequate transportation facilities. At the same time the government must provide the necessary credits for agriculturists to expand their activities.

BREAD IN CHILE[11]

The problem of bread is a matter of concern also in Chile. At its annual meeting in November, 1946, the Nutrition Society of Chile urged the need for a policy aimed at improving the quality of bread. Recognizing that improvement of bread must start with improvement of the grain from which it is made, the society called upon the Ministry of Agriculture to see that only the best varieties are cultivated. At the same time the milling industry was urged to carry on research in order to improve methods of extraction and flour production. The society likewise recommended a program of bread enrichment with vitamins. As in Venezuela, considerable attention is paid to the problem of distribution and price regulation. Finally, the society concluded that the sanitary conditions of the bread baking industry left much to be desired, and that the social condition of the workers in the industry was lamentable. Action by government, industry, and the unions was urged to remedy these conditions.

PELLAGRA IN RUMANIA

Pellagra remains one of the most serious social diseases in Rumania.[12] It was first mentioned in Rumania by Vârnav in 1836, and later by Caillat (1847), Theodori (1858), and Felix (1859). Nitzulescu points out that official figures do not give a complete picture of the prevalence of the disease. In 1945, according to the official figures, 10,302 cases were reported, but there were probably two to three times as many. He urges the need for better and more complete statistical information.

Nitzulescu also points out that the control of pellagra requires action along two fronts, one, social, and two, scientific. Social action is necessary for prophylaxis and therapy of the problems created by the poor nutrition of the peasants. In this part of the program an intensive health education campaign with emphasis on nutrition is an absolute necessity. The scientific side of the program should be based on research centers which would deal specifically with rural nutrition and its problems. These would contain sections for social, clinical, and biochemical research.

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A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

"It looks as if the Federal Government Will Go Ahead"—An illuminating summary of "The Nation's Health" appears, of all places, in the British Medical Journal. With it is an editorial which views, with cool objectivity, our multi-million dollar scramble to block that "communistic" threat to our American institutions. The heading above is a quotation from the summary.

ANON. Medicine in the U. S. A. Report to Mr. Truman. Brit. M. J. 4584:869 (Nov. 13), 1948.

Lifeblood, She Calls It—Webster says that to evaluate is to ascertain the value (worth) of; to appraise (to judge as to quality and productiveness). Doesn't evaluation imply the use of more nearly exact measurements than is suggested by the phrase, critical examination? If we could just get a critical examination of our health educational ways and means, we'd be moving ahead. How one provincial health department does it is the burden of this useful paper.

BEARD, K. Evaluation of Health Education

Materials. Canad. Pub. Health J. 39, 11:440 (Nov.), 1948.

A Fighter Who Hated To Fight—It will do your heart good, even if it doesn't add a nickel to your market value, to read this warm but unpretentious story of one of the pioneering bacteriologists, a story lovingly put together by his son.

CONN, H. J. Professor Herbert William Conn and the Founding of the Society. Bact. Reviews 12, 4:275 (Dec.), 1948.

Amebiasis in Archangel—As a concept, tropical medicine has changed from a group of peculiar diseases to an appreciation that it is just general medicine localized.

GORDON, J. E., and AUGUSTINE, D. J. Tropical Environment and Communicable Disease. Am. J. M. Sc. 216, 3:343 (Sept.), 1948.

Rough on Rats' Fleas—If we won't get rid of rats, we can at least deprive them of most of their fleas (with DDT) and thus lessen the chance of human typhus infections. This paper tells how to do it.

HILL, E. L., and MORLAN, H. B. Evaluation of County-Wide DDT Dusting Operations in Murine Typhus Control. Pub. Health Rep. 63, 51:1635 (Dec. 17), 1948.

Institute—"Arizona is a Wonderful State!" It says so, right here, at the beginning of this paper which gives you excerpts from the script of "Molly Gets Well," a skit that entertained while it informed audiences about the care of tuberculosis. Movies, lectures and demonstrations also were used as visual aids at this institute.

HORKAVI, H. Dramatics in Health Education. Pub. Health Nurs. 40, 12:597 (Dec.), 1948.

Industrial Health Is Public Health—Local health departments have participated less in industrial hygiene than in other phases of health administration. What the local health officials' responsibilities are in this highly important field is set forth in all too meager detail.

JONES, J. L., and FARNER, L. M. Coordination of Industrial Hygiene With the General Health Field. Canad. Pub. Health J. 39, 11:433 (Nov.), 1948.

Round and Round It Goes—Four of these dozen papers have to do with the public health aspects of the control of dental caries. The others are of the "What causes that?" variety. If you are at all interested in this public health problem of the first magnitude, then you will look up the four. You'll discover no easy panaceas.

KESEL, R., *et al.* Symposium on Dental Caries by the AAAS Subsection on Dentistry. J. Am. Dent. A. 37, 4:381 (Oct.), 1948.

That $32,000 Smile—There is no secret to saving teeth. It is as simple as A B C. These are the writer's very words. The rub, of course, is putting the A B C's into administrative practice—that, and productive dental health education. Please read!

LEVINSON, C. A. The Dentistry of Tomorrow. Pub. Health Nurs. 40, 12:610 (Dec.), 1948.

Feeling Creatures—This highly successful effort to point out areas of emotional friction that "inhibit fruitful patient-nurse relationships" will be good for you whether or not you append an R. N. to your name. Never forget the *person* at the receiving end of the needle or the feeding-formula bottle, this psychiatrist urges; and his good advice applies to whatever substitute for the needle or the bottle you hold in your work-a-day hands.

MANN, J. Human Relations in Public Health Nursing. Pub. Health Nurs. 40, 12:583 (Dec.), 1948.

To Be Read for the Fun of It—Much of this debate on the motion "that the practice of instructing the layman in the nature and treatment of disease is being carried to excess," I

found provocative and about as supportive of one's pet convictions as are most debates. It was asserted that in the two countries given to excesses of health education (one of them the U. S. A.), there the quacks and nostrum vendors flourish as the green bay tree. A vote at the close gave a tiny majority against the motion.

O'DONOVAN, W. J., *et al.* Should a Doctor Tell? Brit. M. J. 4586:952 (Nov. 27), 1948.

Difficult Matters of Judgment—English writers put things so felicitously! This nutritionist concludes: at the lowest level we must accept "carrots for beauty," at the second level we must tolerate "body builders, energizers and protectors," at the level of the thoughtful citizen—one who can grapple with rational explanations—lasting progress is slowly being achieved. Nice, isn't it?

PYKE, M. Visual Aids to Nutrition Education for the Public. Nutrition Rev. 6, 12:353 (Dec.), 1948.

The Mothers Like It, He Says—Another of those timetables of immunizations. This one sharpens the needle for the infant victim once each month during the first ten, then a half dozen more jabs are given between ages one to six while the child is still unable to fight back.

SAKO, W. Practical and Immunologic Aspects of Pediatric Immunizations. Pediatrics 2, 6:722 (Dec.), 1948.

About Studying Work Distribution—Work simplification means taking the "WORK" out of work. It doesn't mean speed-up. This discussion, for the benefit of the girls who manage institutional diet kitchens, has a lot in it for women or men who manage laboratories, inspection forces, statistical record rooms and other public health administrative services. Open memo to editorial board: how about having experts from other fields than ours give us some how-to-do-it hints, like this one.

SCHMID, M. D. Work Simplification—Making the Job Easier. J. Am. Dietet. A. 24, 12: 1062 (Dec.), 1948.

Respectfully Called to Your Attention—Among all the other shortages in the nursing profession there continues to be a shortage of qualified teachers and supervisors. That bogey, which the viewers-with-alarm conjure up, the over-educated nurse, is likely to remain a figment of their agitated imaginations for many moons to come, so this reporter alleges—because many of the existing schools haven't the ability to over-educate her.

VREELAND, E. M. Some Qualitative and Quantitative Factors in Nursing Education. Pub. Health Rep. 63, 52:1667 (Dec. 24), 1948.

"Country-Cousin Attention"—There is no organized instruction in preventive medicine in twenty-eight medical schools and most of these do not consider such emphasis as important. A portrait of the medical school of the future is painted.

WEINERMAN, E. R. Medical Schools and the Quality of Medical Care. New England J. Med. 239, 22:810 (Nov. 25), 1948.

ASSOCIATION NEWS

REVISION OF THE REPORT ON COMMUNICABLE DISEASE CONTROL UNDER WAY

Preceding the 76th Annual Meeting of the Association in Boston, the subcommittee on Control of Communicable Diseases met for two days to agree upon changes for the 7th edition of the manual *Control of Communicable Diseases;* scheduled for reissue in 1950.

The committee of 14 members is headed by Haven Emerson, M.D., who has been its chairman for the third of a century since its creation in 1916. The committee has the collaboration of several national and international professional organizations and of the British Ministry of Health. The latter was represented at the Boston meeting by Dr. A. H. Gale, Medical Officer, British Ministry of Health and Dr. J. R. Peters, Chief Medical Deputy Officer, Department of Health for Scotland. WHO was represented by Dr. Frank A. Calderone, Director of the New York Headquarters Office; the Pan American Sanitary Bureau by its Director, Dr. Fred L. Soper; the U. S. Department of National Defense by Dr. Joseph E. Smadell, Director of the Army Medical Laboratory, Washington, D. C.; the American Academy of Pediatrics by Dr. Archibald L. Hoyne, Medical Superintendent of the Chicago Contagious Disease Hospital.

The members of the committee preparing the 7th edition are:

Gaylord W. Anderson, M.D., Director, University of Minnesota School of Public Health
J. A. Bell, M.D., Senior Surgeon, U. S. Public Health Service
Donald T. Fraser, M.D., Professor of Hygiene and Preventive Medicine, University of Toronto
Alexander A. Gilliam, M.D., Director, Epidemiology Division, National Cancer Institute
John E. Gordon, M.D., Department of Epidemiology, Harvard School of Public Health
William M. Hammon, M.D., Professor of Epidemiology, University of California
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Kenneth F. Maxcy, M.D., Professor of Epidemiology, Johns Hopkins University
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Alton S. Pope, M.D., Deputy Commissioner, Massachusetts Department of Public Health
Ernest L. Stebbins, M.D., Director, Johns Hopkins University School of Hygiene and Public Health
Franklin H. Top, M.D., Director, Herman Kiefer Hospital, Detroit
Norman H. Topping, M.D., Associate Director, National Institutes of Health

Meeting at the same time was the study group on Hemolytic Streptococcal Infections of the Committee on Evaluation of Administrative Practices, whose secretary is Dr. Top. Other members are Drs. Anderson, Fraser, John R. Paul, Professor of Preventive Medicine, Yale University; and Milton V. Veldee, Chief, Biologics Control Laboratory, National Institutes of Health.

In addition, the following consultants attended the group meeting:

Morton Hamburger, M.D., University of Cincinnati Medical School
T. Duckett Jones, M.D., Director of the Helen Hay Whitney Foundation, New York
David D. Rutstein, M.D., Professor of Preventive Medicine, Harvard University
Francis F. Schwentker, M.D., Pediatrician in Chief, Johns Hopkins Hospital
Homer F. Swift, M.D., Hospital of the Rockefeller Institute for Medical Research

This group made recommendations for revision of the chapters of the communicable disease control report on Hemolytic Streptococcal Infections, Respiratory and Non-Respiratory, and Rheumatic Fever. The revised chapters

were accepted by the Subcommittee on Control of Communicable Diseases for inclusion in the 7th edition.

In the new edition, control measures will be presented under four main classifications: preventive measures, those applicable to the individual case and contacts, epidemic measures, and international measures.

Treatment will not be dealt with except as it affects the period of communicability of a particular disease. A number of definitions will be added. The sections on the rickettsias and the jaundices have been materially changed due to recent new knowledge. Enterobiasis, histoplasmosis, and toxoplasmosis are among the diseases that have not been included in previous editions of this report.

The manual *Control of Communicable Diseases* was first published in 1917. The 6th edition, printed in 1945, was prepared with the agreement of the British Ministry of Health as to certain diseases, was adopted as official by the U. S. Public Health Service, the U. S. Navy, and the Territory of Hawaii, was recommended for adoption as an official statement by the National Health Administration of China, was approved for distribution to the staff of UNRRA, and was published under the imprint of 10 state health departments, and Washington, D. C., the Quebec Ministry of Health, U. S. Indian Service and the Office of War Information, the departments of public health of the Louisiana State and Yale Universities Schools of Medicine, and the Atlantic Seaboard and Northwest Divisions of the Agricultural Worker's Association. It was translated into at least 6 languages. The Pan American Sanitary Bureau was responsible for the translation and distribution of the Spanish text.

SPECIAL NOTICE TO MILK CONTROL LABORATORIES

The Sanders-Sager Phosphatase Test for Pasteurization

The Sanders-Sager Method for the determination of residual phosphatase in a wide variety of heat-treated dairy products, including milk and cream, has been adopted by the Association of Official Agricultural Chemists, *Journal A.O.A.C.*, 31:82–91, 1948. This action has created an inconsistency with respect to phosphatase methods recognized by the American Public Health Association.

The New York State Department of Health Method and the New York City Department of Health Laboratory Method I have been recognized in *Standard Methods for the Examination of Dairy Products, Ninth Edition*, for use on milk, cream, frozen desserts, chocolate milk, and butter. In the same publication the Sanders-Sager Method was adopted for use on hard type (cheddar) cheese only.

Plans are now being made for public health laboratories to join in collaborative work under the direction of the Associate Referee on Phosphatase Methods in the Association of Official Agricultural Chemists. The intent is to compare the methods as customarily used in the collaborator's laboratory on fluid milk and cream with the Sanders-Sager procedure, hoping thereby to be able to reconcile the present inconsistent status of recognition.

Copies of the Sanders-Sager Method, including the formal action taken thereon, can be obtained from the office of the American Public Health Association. These are distributed with the approval of the Joint Editorial Board, Ninth Edition, Standard Methods for the Examination of Dairy Products.

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The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Order blank for Report of the Sanitary Commission of Massachusetts 1850 by Lemuel Shattuck appears on page XXXVI.

A.P.H.A. membership application blank on page XXXIII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

TB Control Physician for Pacific Coast State Health Department. Minimum 3 years' experience in TB control work. Graduate of Class A medical school, 1 year internship, preferably supplemented by 1 year graduate study in school of public health leading to M.P.H. degree. $7,200 to start, advancing to $8,400. Considerable state-wide travel with maximum per diem of $7.50, plus 6¢ per mile for use of car. Civil Service status but no written exam required. Write Box A-45, Employment Service, A.P.H.A.

Assistant Medical Superintendent, TB Sanatorium. To assist in administration of 100 bed TB Sanatorium and outpatient chest clinic. Some previous experience in a TB institution required. Candidates must have license or procure license to practise in California before appointment. Salary range $549–686 monthly. Write: Civil Service Commission Court House, Redwood City, Calif.

Clinical Laboratory Technician to perform general bacteriological and serological examinations and various diagnostic tests under direction of Senior Technician. Current Clinical Laboratory Certificate issued by State of California must be obtained prior to appointment. Salary range $225–281 monthly. Write: Civil Service Commission, Court House, Redwood City, Calif.

Bacteriologist to perform water and milk laboratory examinations and general current bacteriological and serological laboratory work. Public Health Laboratory Technicians certificate issued by California must be obtained prior to appointment. Salary range, $252–314. Write: Civil Service Commission, Court House, Redwood City, Calif.

Health Educator for State TB Association in New England. Duties include consultant work with affiliated associations throughout state to promote community organization for health education and public health action. Master's degree in public health and/or health education is required. Please state salary expected. Write: (Mrs.) Sarah J. Schmidt, Director of Health Education, Massachusetts Tuberculosis and Health League, 1148 Little Bldg., Boston 16, Mass.

Local Health Consultant, 5 years employment in public health work including experience as health officer. Equivalent combinations will be considered. Salary $6,600–9,120. Appointment may be made at the minimum rate. Write: State Personnel Department, State Capitol, Hartford, Conn.

Laboratory Technician, male or female, for City Health Department Laboratory. Graduate of recognized training school, salary begins at $2,700 and increases to $3,110 after probationary period of 90 days. Retirement plan, vacation, and sick leave. State training and experience in bacteriology, serology, parasitology, and other related subjects. Write: R. L. Loftin, M.D., Director, Bay City Dept. of Health, City Hall, Bay City, Mich.

Public Health Officer, Grays Harbor County, Washington; entrance salary of $7,440 per annum with the range reaching $9,120. Hoquiam and Aberdeen are the principal cities of this county which has a population of about 55,000 and is located on the westernmost portion of the state bordering the Pacific Ocean. Write: Arthur L. Ringle, M.D., State Director of Health, 1412 Smith Tower, Seattle, Wash.

Public Health Officer for County Health Department. Beginning salary $12,000; salary range $12,000–15,000. Car provided. References, qualifications, experience, recent photograph required. Write: Box 1191, Joliet, Ill.

Bacteriological Technician to assist in the Bacteriology Department of the Research Division of a large pharmaceutical and biological firm. B.S. degree in Bacteriology and at least 1 year of experience. Experience in immunology or chemotherapy desirable. Salary starts at $58.40 per week. Write Box A-44, Employment Service, A.P.H.A.

Supervisors and Public Health Nurses, Baltimore County Health Department. Population 248,000; suburban, industrialized, and rural areas; county seat 8 miles from Baltimore. Generalized service including modern school health program, rapidly expanding up to 50 field nurses. One month's vacation; 5 day, 35½ hour week; sick leave; retirement plan. For

use of personal car, 7¢ per mile. Supervisors: degree and experience required; salary $3,200–$3,700; with additional preparation in child hygiene, venereal disease, mental hygiene, or orthopedics, $3,500–$4,000. Public Health Nurses: beginning salary $2,300 (for trainee) to $2,700, depending on experience and education; increases to $3,300. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Dept. Towson 4, Md.

Physician as Director City-County Health Department, population 56,000; staff of 14; well equipped offices and laboratory. Salary for man with degree in public health $7,500 plus 8¢ per mile travel. Write: City-County Health Dept., Safety Building, Eau Claire, Wis.

Sanitation and Public Health Engineer—*experienced man for tropical assignment.* Will work in connection with well established medical hospital. Should have background in malaria and nuisance control, laboratory testing, worm and infectious diseases. Attractive two year contract. Write for details to **Box A-43**, Employment Service, A.P.H.A.

Public Health Nurses needed by San Bernardino County; public health nurse's certificate required; car necessary, mileage allowed; salary $232–282 per month. Write: County Personnel Office, 242 Third Street, San Bernardino, Calif.

1. **Field Workers** for state office of voluntary health agency, Northeast. Salary range $3,000–3,800 or $3,800–4,800 depending on background.
2. **Executive Secretary** for local voluntary agency, Northeast; salary $4,000–$5,000. Health Education and community organization background required for both types of positions. Write **Box A-42**, Employment Service, A.P.H.A.

Health Director for Shiawassee County, Michigan. Population about 42,500. Write to J. R. Middaugh, Chairman Health Committee, Laingsburg, Mich.

Health Officer for agricultural county in eastern North Carolina; population 68,000; county seat has 4 year college, accredited high schools, staff of 10, salary open. Must meet North Carolina Merit System requirements. Prefer M.P.H. Write: J. H. Boyd, Jr., Mayor, Greenville, N. C.

Sanitary Engineer or experienced **Sanitarian** for rural district in Michigan. Starting salary $3,400 and mileage $600. Write: Saginaw County Health Dept. 1501 North Michigan, Saginaw, Mich.

Announcement

District Health Officers Wanted in New York City Health Department

The New York City Department of Health has 6 vacancies in the title of District Health Officer at the salary of $7,150 per annum. This position involves administrative responsibility for all activities of the Department of Health in a district with a population of approximately 250,000. Candidates must have an M.D. degree and 1 year of approved internship. In addition, they must have an M.P.H. degree and 3 years of experience as a health officer or assistant health officer, or in another administrative public health position; or a satisfactory equivalent of this education and experience. Local legislation requires 3 years of residence in New York City immediately prior to appointment. This requirement will probably be waived in the case of outstanding applicants. Interested applicants are to write to: Bureau of Personnel, New York City Department of Health, 125 Worth Street, New York 13, N. Y.

POSITIONS WANTED

Bacteriologist, M.S., minor chemistry, 9 years of extensive experience in research, clinical bacteriology, and industrial development. Interested in responsible position in public health, industrial laboratory or teaching institution. Write **Box L-D1**, Employment Service, A.P.H.A.

Sanitarian, B.S., M.P.H., male, 39, 8 years field and administrative experience in control of food, drugs, milk, and water in official health department. Interested in supervisory or administrative position in environmental sanitation program of official agency or industry. Minimum required salary $5,000 per annum. Write **Box E-7**, Employment Service, A.P.H.A.

Director of one of larger northern industrial city departments, with broad federal, state, and local experience; initiator of several unique and successful programs, desires change to south or southwest for climatic reasons. Will exchange and respect confidential correspondence preliminary to interview. Write **Box C-9**, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Professor of public health, foreign university; American citizen, qualified to speak Spanish fluently, required. (b) Public health director, health unit comprising two county areas; town of 8,000, short distances from university center, several large cities; Middle West. (c) Student health director; state university; 9,000 students. (d) Public health or tuberculosis specialist to serve as tuberculosis consultant in United States dependency. (e) Tuberculosis specialist to direct newly inaugurated program in large metropolitan area; $15,000. (f) Public health physician to direct new program; large organization; California. (g) Public health supervisors and staff nurses; newly established city and county health departments; salaries for former, $3,300–$4,800; for latter, $2,700–$3,900. PH2-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Dentist to direct health program of education, preventive and remedial; suburb, Middle West metropolis, university medical center. (b) Dental consultant; state department of health; should be qualified to develop program for children; Southwest. (c) Dentist to conduct rural health dental program; Southeast. PH2-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Health Educator; Chicago area. (b) Sanitary engineers, public health engineers and specialists in fields of malaria and insect control; positions of considerable responsibility; South America. (c) Sanitarian; county health department; California. (d) Health educator; university medical center; New England. (e) Sanitary engineer; state department of health; West. PH2-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Public health nurse supervisor; generalized program, including tuberculosis division, school program; university town, California. (b) Educational supervisor; city health department; vicinity New York City. (c) Public health nurse consultant; state service for crippled children under direction of university medical school. (d) School nurse to direct health program; county schools; headquarters in university town; Pacific Northwest. (e) Public health supervisors and staff nurses; modern health centers; South America; knowledge of Spanish, Portuguese or French desirable. PH2-4 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health physician seeks directorship; M.P.H., Johns Hopkins; seventeen years' public health experience, including important assignment abroad; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Dentist experienced in public health work; eight years in charge of dental division, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator or coördinator; Master's in Public Health; two years, health educator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S. in Bacteriology; twelve years, sanitary engineer, large industrial company; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health specialist; M.S.P.H. (Major: health education), Yale; eight years, Professor of Health Education and Health Educator, small college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse seeks administrative position; M.A., Public Health Nursing; six years, educational supervisor, city health department; eight years, nurse consultant, state board of health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

SUMMARY OF REPORT OF THE TASK FORCE COMMITTEE ON FEDERAL MEDICAL SERVICES TO THE COMMISSION ON ORGANIZATION OF THE EXECUTIVE BRANCH OF THE GOVERNMENT

One section of the work of the United States Commission on Organization of the Executive Branch of the Government, commonly known as the Hoover Commission, was charged with a study of federal medical services. Former President Herbert Hoover released, on December 26, a summary of the report of the Task Force on Federal Medical Services. Its purpose, he said, was to indicate the organizational problems with which the government is confronted. The report represented almost a year's work.

Mr. Hoover said that we all want veterans and members of the armed services to have first rate medical care and that the problem is to provide such care without overtaxing our limited number of trained physicians and other medical resources. This means that we must eliminate waste in the use of these physicians and in the use of these resources. Unless we do this, veterans, civilians, and servicemen alike will suffer.

Mr. Hoover made it clear that Task Force findings do not necessarily represent the final conclusions of the Commission, which is obligated to make a pattern of the Government as a whole, and it is not always possible, he said, to fit special points of view into the general pattern.

The personnel of the Task Force on Federal Medical Services included, under the Chairmanship of Hon. Tracy S. Voorhees, Assistant Secretary of the Army, 16 members of the committee, plus a professional staff. Among those best known in public health were Edward D. Churchill, M.D. of Boston; Robin C. Buerki, M.D., of Philadelphia; Paul R. Hawley, M.D., of Chicago; Hugh R. Leavell, M.D., of Boston; William C. Menninger, M.D., of Topeka; Hugh J. Morgan, M.D., of Nashville; Alfred N. Richards, Ph.D., of Philadelphia; Allen O. Whipple, M.D., of New York and Ray Lyman Wilbur, M.D., of Palo Alto. The staff consisted of Howard M. Kline, Ph.D., as Executive Director, recently a member of the staff of the A.P.H.A. Subcommittee on Medical Care, with Jack R. Ewalt, M.D., in neuropsychiatry; Richard Nauen, M.D., and Edward X. Mikol, M.D., for tuberculosis; Julius Comroe, Jr., M.D., for research; James Troupin, M.D., for preventive medicine; E. Richard Weinerman, M.D., for hospitalization; plus specialists in medical supply.

I. MAGNITUDE OF THE PROBLEM

In 1948 more than forty-four federal agencies spent about 1¼ billion dollars for health and medical services. The federal government now assumes a varying degree of care for some 24,000,000 persons, about one-sixth of our population.

II. WEAKNESSES OF THE PRESENT SYSTEM OF ORGANIZATION OF FEDERAL MEDICAL SERVICES

The present program is devoid of any central plan. The federal government is assuming uncalculated obligations without any understanding of their ultimate cost, the lack of the necessary professional man power to carry them out or their adverse effect upon the hospital system of the country. There must be overall planning and this in turn requires first, a clear definition of the extent of the responsibilities, and second, an organization appropriate to carry out the commitment.

A. *Defects Revealed by Area Studies*

In the New York City area it was found that four Army and Air Force hospitals could be closed, reducing the requirements for medical officers by 80 per cent, yet at the same time a higher standard of service would be provided. Several federal agencies are planning to build hospitals in this area to cost $100,000,000, meaning a doubling of the permanent plant. There is no evidence that such additional beds are needed.

In the San Francisco area there are 13 federal hospitals with a constructed capacity of 9,900 beds, but they have only 4,200 patients at present. Seven of these 13 hospitals could be closed since only 42 per cent of their constructed capacity is utilized.

In Honolulu the Army has just completed a hospital costing $37,000,000, although the Navy has close by a permanent hospital plant adequate for all military needs in that area. Under proper planning practically all of the expenditures for the Army Hospital since the war could have been avoided.

B. *Defects on the Basis of Diseases*

For tuberculosis and neuropsychiatric cases (which now occupy 60 per cent of the Veterans Administration's beds) the present organization is unsatisfactory. There is an acute shortage of medical personnel aggravated by unsound organization. Duplication results in inefficiency, and there is imperative need for unification.

C. *Shortcomings in Construction Program*

The Veterans Administration has a hospital construction program that will cost $1,100,000,000. These hospitals will cost from $20,000 a bed to as high as $51,000 per bed depending on the size and location. "V.A.'s program conflicts with the government's policy under the Hill-Burton Act of aiding non-federal hospitals for the purpose of establishing a further hospital system for the country as a whole."

D. *Defects Relative to the Length of Stay of Patients*

Compared with representative voluntary hospitals, patients with the same diagnosis stay in government hospitals two or three times as long. Under a unified system with proper planning the period could be greatly shortened.

E. *Shortcomings in the Use of Medical Man Power*

In the Armed Forces a great shortage of medical personnel exists. Within six months it will be accentuated because medical personnel trained at government expense will be completing their required tour of duty. A draft of medical personnel is needed, but it will bring in only young doctors who cannot provide high-grade specialized care. Among the non-military federal agencies, no one has the necessary man power. This condition is neither *temporary nor self-correcting*. Construction of the Veterans Administration hospitals is far outrunning the available man power. These shortages are intensified by present organization and practices which make for inefficiency in utilizing professional personnel.

F. *The Problem of Federal Beneficiaries*

A large plant is being built to serve groups of beneficiaries to whom the federal obligation is not clearly defined. About 900,000 Army and Air Force dependents receive complete medical care on no basis other than an appropriation act passed more than sixty years ago authorizing medical officers to care for dependents "whenever practicable." Concerning veterans with non-service connected disabilities, there is an authorization to hospitalize them only if beds are "available." Nevertheless, 100,000 Veterans Administration hospital beds have been built or authorized which serve no purpose except deliberately to make beds available for non-service connected cases. Most of this hospitalization could be more efficiently provided in community hospitals on a reimbursable basis.

III. RECOMMENDED ORGANIZATION TO ACHIEVE OBJECTIVES DEFINED BY CONGRESS

For the non-military system it is recommended that a National Bureau of Health should be established within the Cabinet Department embracing health, education and security. This Bureau of Health should be headed by a professional career Director General, who should report directly to the Secretary of the Department. This Bureau should be composed of three main divisions:

1. Medical Care, which would include all functions of hospitalization and other direct medical care of patients
2. Public Health Division
3. Research and Training Division

IV. MEDICAL CARE FUNCTIONS OF THE NATIONAL BUREAU OF HEALTH

To the Medical Care Division of the Bureau there should be transferred the following:

1. All general hospitals of the Armed services and most station hospitals except those at outlying posts
2. The medical functions of the Veterans Ad-

ministration, in toto, including the outpatient service in the Regional Offices
3. The hospitals of the Public Health Service
4. St. Elizabeths Hospital

Each of the armed services should maintain one medical and teaching hospital, overseas hospitals, and some station hospitals. The hospitals of the Bureau of Indian Affairs and the Bureau of Prisons should not be transferred, but they should be manned by personnel from the National Bureau of Health. The transfer of the general hospitals of the armed services is justified partly because a large number of the patients in them are of little further military value. The transfer of the Veterans Administration hospitals is justified under the Commission's instructions to place like functions, where possible, together. If they are to remain separate, the Bureau of Health would be a central health agency in name only.

V. INTEGRATION OF FEDERAL HOSPITALIZATION SYSTEM WITH NON-FEDERAL HOSPITALS

The present inconsistencies in policy between the Veterans Administration and other federal construction programs and the non-federal hospitals under the Hill-Burton Act should be ended. Inadequacies exist in the nation's hospital plant. The federal government believes that there is need for doing something about them. This policy could be furthered by placing federal cases in non-federal hospitals on a reimbursable basis wherever it is efficient to do so instead of further enlarging the federal hospital plant. Where facilities do not exist they can be constructed on a grant-in-aid basis with much less cost to the federal government than by direct construction and operation. The average total cost of construction per hospital bed for private hospitals is about $16,000, whereas in federal hospitals it is between $20,000 and $30,000. Also this would tend to relieve the financial difficulties of private hospitals.

VI. NEED FOR RECONSIDERATION OF THE DEFINITION OF BENEFICIARIES

In planning future medical services Congress should clearly define the beneficiaries. As to dependents of persons in the armed service the same policy must apply to all three services. Such care is really a part of the compensation of persons in the armed service.

As to veterans with non-service connected disabilities, the present situation is inequitable to veterans and unsound and expensive for the government. Such care should be furnished in those facilities, whether federal or local, in which it can be given most efficiently. Congress should make a decision on whether medical service should be extended to all veterans irrespective of financial need or to those with non-service connected disabilities only if they are in financial need. "In any case, there is no need for financial screening of chronic cases, as substantially all of these are soon made medical indigents by their disease. They would be a charge on the public in any event."

VII. ORGANIZATION OF MEDICAL SERVICES IN THE ARMED FORCES

Unification of medical services in the various armed forces would be most efficient, but medicine alone cannot be merged. Consequently such consolidation must be geared to the extent of unification of the services themselves. Much duplication can be avoided by assigning responsibility in each overseas area to one service to give hospital care for all. Supervision of armed forces medical services should be in the hands of a Deputy of the Secretary of Defense. These suggestions would greatly relieve the demand for personnel for armed service medical service. Nevertheless, this reduction in requirements would not be sufficient to avert a draft of medical personnel.

VIII. HEALTH RESOURCES AND MAN POWER ALLOCATION IN TIME OF EMERGENCY

The plan that has been outlined above would be a significant measure to promote national defense. It would make possible the optimum utilization of medical man power by a full integration of the federal hospital system with non-federal hospitals. It would make possible a further saving of medical man power. Where atomic warfare is a potential threat it is not feasible to take medical practitioners from their home communities. To do so would imperil civilian defense.

IX. PUBLIC HEALTH FUNCTIONS OF THE NATIONAL BUREAU OF HEALTH

In the Public Health Division of the proposed National Bureau of Health the following activities would be consolidated. From the Public Health Service the following would be transferred: the Bureau of State Services and quarantine activities of the Bureau of Medical Services, the Biologics Control Laboratory and the Offices of Sanitary Engineering and of Dentistry from the Office of the Surgeon General. The Food and Drug Administration would also be a part of the Public Health Division.

The main functions of the Public Health Division would be

a. To administer grants-in-aid.
b. To conduct a clearing house of information on public health activities.
c. To regulate Interstate Commerce in foods, drugs, and medicines.

The federal grants-in-aid for public health have proved extremely useful. They have stimulated state and local expenditures for public health. The federal share of such expenditures has fallen from 46 per cent in 1937 to 29 per cent in 1946. It is recommended that in the future these grants should be made on a more general basis. The federal structure for administering grants should be simplified and decentralized, with minimum supervision of the states consistent with sound planning and administration. The grants-in-aid administered by the Children's Bureau should not be transferred immediately. "It is the view of your committee that it [the Children's Bureau] should function as a staff unit directly responsible to the secretary of the proposed department, rather than having its health and other functions split and united with the major component units of the Deparement." In not more than three years the administration of grants for maternal and child health and crippled children should be consoldiated with the other health grants-in-aid administered by the Public Health Division.

The *Meat Inspection Service now in the* Bureau of Animal Industry should remain there.

X. RESEARCH AND TRAINING IN THE NATIONAL BUREAU OF HEALTH

Because research and medical education are a necessary part of any broad medical program, a Division of Research and Training should be created in the Bureau. In the administrative control of research there is need for a certain looseness and flexibility. Nevertheless, some coördinating mechanism is needed under which research activities that are truly vital to the national welfare may be considered. In the armed services a committee on medical sciences has been created by the Research and Development Board.

In the non-military field a comparable committee should be created consisting of representatives of the Divsiion of Research and Training of the new Bureau, along with representatives of the Atomic Energy Commission and of the Department of Agriculture.

There should also be created a new Interagency Committee on Medical Sciences composed of representatives of the above mentioned group and the group from the military services. This committee should be concerned primarily with grants-in-aid and institutional grants to non-federal institutions. It is also recommended that a National Science Foundation should be established primarily as a means of insuring strength in the basic sciences.

The proposed Division of Research and Training should conduct directly laboratory and basic research, administer grants-in-aid in this field and act as a clearing house of information. The work of the National Institutes of Health should be transferred to it, and it should operate the proposed Clinical Research Center of the Public Health Service.

XI. PERSONNEL POLICIES IN FEDERAL MEDICAL SERVICES

A new overall medical service should be organized for the federal government. The nucleus for this would consist of the medical personnel of the VA hospitals, the commissioned personnel of the Public Health Service and all medical professional personnel employed under Civil Service. "It would be impracticable to make this a commissioned corps." Members of the commissioned service of the Public Health Service should be given the option of positions in the new service or of continuing in their present status "but no new commissions should be issued."

"The new system should put into the hands of the National Bureau of Health the full responsibility for recruiting, selecting, assigning and otherwise handling its own professional personnel." The Civil Service has never functioned effectively in providing an adequate professional career service for medical and ancillary personnel partially because of its rigidity, slowness and lack of opportunity for promotion.

XII. AID TO MEDICAL EDUCATION

Many medical schools are now in serious financial condition. Government financial aid is now an urgent necessity. Adequate facts on which to distribute such aid are not available. The Public Health Service should make a short-range survey to determine the exact needs and how they should be met. Care must be taken in granting aid to maintain the professional independence and the initiative of the schools. Also the aid should be given in such a way as to increase the output of trained personnel especially in the areas where there are acute deficiencies.

XIII. MEDICAL SUPPLY

A unified supply system for medical items would effect great savings.

XIV. PROVISION FOR CONTINUING STUDY AND TOP LEVEL SUPERVISION OF FEDERAL MEDICAL SERVICES

It is necessary to establish some means of coördinating military and non-military federal organizations in the medical field.

XV. THE NEED FOR INCREASED EMPHASIS ON THE CONTROL OF DISEASE

The outlook is most alarming concerning the costs of medical care and the needs for hospitalization if we consider medical care in terms of its organization as it exists today. One important factor that would directly reduce costs for hospitalization is the relative increase in the provision of ambulatory care. At present the government apparently is committed to a reverse policy. The second course open is through research and development in public health and preventive medicine. Here the federal government can lend assistance. Preventive medicine must be widely defined as including both special measures that protect the individual from contracting a disease as well as measures for the prevention of death and disability, and the early recognition and treatment of disease that is already established.

As an example of the savings that can result from preventive medicine, some 50,000 more persons would have died of diphtheria in 1947 if the 1900 mortality rates had prevailed. The cost to the nation in 1947 would have been $30,000,000 as against an actual expenditure of $600,000. "We stand confident then in the recommendation of a courageous approach to the control of chronic disease, rather than a passive acceptance of the immeasurable cost that lies ahead. Funds invested in research and education at this time will not only return dividends in dollar savings in the future, but a still greater reward in health and productivity in the nation."

XVI. CONCLUSION

"We have attempted to outline a method which we hope will correct the extravagance resulting from the present series of unrelated projects, and weld these together into an integrated, orderly whole. With such an organization, staffed by outstanding personnel, it should be possible to utilize our unequaled medical resources to the maximum, and by intelligent planning take steps which will make us a healthier and stronger nation."

PAN AMERICAN SANITARY ORGANIZATION MEETS

The Directing Council of the Pan American Sanitary Organization met in Mexico City, October 8–12. It adopted a budget of $1,700,000 for the year 1949 for its operating unit, the Pan American Sanitary Bureau. Approximately 30 per cent each, of this budget, is designed for field programs for the control of communicable diseases, and for central service and field activities, and approximately 20 per cent each for headquarters administration, and for zone offices.

At this meeting also a report was made on relations with the World Health Organization which will be the basis for the agreement between WHO and the Pan American Sanitary Organization. The director of the Pan American Sanitary Bureau is authorized to sign this agreement as soon as 14 of the 21 American nations have ratified the Constitution of the World Health Organization. Nine nations have ratified, the most recent one being Argentina on October 22. The Directing Council of the Pan American Organization recommended to its remaining members the desirability of ratification so that the viewpoint of the American continent might be duly represented in WHO deliberations.

This meeting also took action on non-self-governing territories, which by resolution, were granted the right to participate without vote in the deliberations of the plenary sessions of the Directing Council; to participate with voting rights in committees of the Directing Council except in matters of administration, finances, and the constitution; to participate on the same basis as members in matters relating to procedure in the sessions of the Directing Council and its committees; and to propose subjects for the agenda of meetings of the Directing Council.

Lima, Peru, was designated as the seat of the 1949 meeting of the Directing Council.

The following officers were elected at a preliminary session of the Executive Committee:

Chairman: Mexico, Dr. Ignacio Morones Prieto
Vice-Chairman: Peru, Dr. Jorge Estrella Ruiz
Secretaries: Pan American Sanitary Bureau, Dr. Miguel E. Bustamante; Mexican Delegation, Dr. Jose Zozaya

Representatives of the 19 countries present at the meeting were:

Argentina, Dr. Alberto Zwanck
Bolivia, Dr. Nestor Salinas Aramayo
Brazil, Dr. Heitor Praguer Froen
Colombia, Dr. Jorge Boshell Manrique
Costa Rica, Dr. Gonzalo Gonzalez Murillo
Cuba, Dr. Luis Espinosay G. Caceres
Dominican Republic, Dr. Luis F. Thomen
Ecuador, Dr. Roberto Nevarez Vasquez
El Salvador, Dr. Rafael Vega Gomez
Guatemala, Dr. Luis F. Galich
Honduras, Dr. Daniel Meza Zelaya
Mexico, Dr. Ignacio Morones Prieto
Nicaragua, Dr. Jacinto Jimenez
Panama, Dr. Guillermo Garcia de Paredes
Paraguay, Dr. Raul Pena
Peru, Dr. Jorge A. Estrella Ruiz
United States, Dr. Thomas Parran
Uruguay, Dr. Ricardo Cappeletti
Venezuela, Dr. Alfredo Arreaza Guzman

The Pan American Sanitary Bureau's Director, Dr. Fred L. Soper; the Assistant Director, Dr. John R. Murdock, the Secretary General, Dr. Miguel E. Bustamante; the Chief of the Lima Regional Offices, Dr. Anthony Donovan; and its nursing consultant, Mrs. Agnes M. Chagas, among others, were present. The final report was signed for the United States by Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, serving as an alternative representative for his country.

Observers were present as follows:

World Health Organization: Dr. Frank A. Calderone, Director, New York Office
Holland: Dr. C. Van Den Berg, Director General of Public Health
French Antilles: Dr. Rene Goulley, Ministry of Health
British Caribbean Territories: Dr. Joseph W. P. Harkness, Medical Adviser
Netherlands West Indies: Dr. Jacob Rudolph Arends, Chief, Health Services
Surinam: Dr. Anton Eduard Wolff, Chief, Bureau of Communicable and Endemic Disease Control

DR. ARMSTRONG RECEIVES PRENTISS AWARD

At a luncheon meeting of the Health Education Section, American Public Health Association, in Boston on November 9, Donald B. Armstrong, M.D., 2nd Vice President of the Metropolitan Life Insurance Company in charge of health and welfare services, received the fifth annual Elisabeth S. Prentiss National Award in Health Education, for outstanding achievement in the health education field. The presentation was made by Lester Taylor, M.D., president of the Cleveland Health Museum.

The Museum's Award Committee based its selection of Dr. Armstrong upon a wide range of accomplishments. His 1916 survey and study led to the establishment of the world's first health demonstration, the Framingham, (Mass.) Community Health and Tuberculosis Experiment. This proved that a community can stamp out tuberculosis, and paved the way for control in this and other countries. His survey in 1920 resulted in the first National Health Council which he headed for several years. As Secretary of the Milbank Memorial Fund Technical Board he conducted health demonstrations in several New York State cities.

In receiving the Award, Dr. Armstrong paid a tribute to his staff. "It is the members of this staff," he said, "rather than one involved in administrative policies, who really contribute and execute ideas and effective action in health education. These associates of mine are the real winner of this award."

SURVEY OF MEDICAL EDUCATION

A three year survey of medical education was begun on January 1 jointly by the Association of American Medical Colleges and the Council on Medical

Education and Hospitals of the American Medical Association. The full-time director of the survey is John E. Deitrick, M.D., also professor of medicine at Cornell University Medical College and active for many years in cardiovascular research.

The objectives of the study are stated to be "to evaluate the present programs and determine the future responsibilities of medical education" in order to:

1. Maintain the best physical and mental health standards of all the people.
2. Assess the degree to which medical schools are meeting the needs of the country for physicians.
3. Promote the advancement of knowledge in the field of medical science.
4. Inform the public fully about the nature, content, and purposes of medical education.

The members of the joint committee of seven who will supervise the study are:

Dr. Alan Valentine, Chairman, President, University of Rochester
Dr. Donald G. Anderson, Secretary, Council on Medical Education and Hospitals, American Medical Association
Dr. Arthur C. Bachmeyer, Associate Dean, University of Chicago School of Medicine
Dr. Joseph C. Hinsey, Dean, Cornell University Medical College
Dr. Victor Johnson, Director, Mayo Foundation for Medical Education and Research, Rochester, Minn.
Dr. Dean F. Smiley, Secretary, Association of American Medical Colleges
Dr. Herman G. Weiskotten, Dean, Syracuse University College of Medicine

WHO NOW INCLUDES 57 NATIONS

It was announced at headquarters of the United Nations at Lake Success, N. Y., on January 6, that Paraguay had joined the World Health Organization to become the 57th member of the group.

t was pointed out that Paraguay is tenth member of the Organization American States to join WHO. When rteen American republics have joined, ormal integration is to be effected between the WHO of the United Nations and the Pan American Sanitary Bureau, which will serve as a regional agency of WHO.

NEW YORK STATE HEALTH CONFERENCE MOVES TO LAKE PLACID

Herman E. Hilleboe, M.D., New York State Commissioner of Health, has announced that Lake Placid, N. Y., has been chosen by the State Department of Health as the location for the 45th Annual Conference of Health Officers and Public Health Nurses. The 1949 conference dates will be June 20–23 and will include meetings of the State Health Officers Association and the Association of School Physicians.

The conference has for many years been held in Saratoga Springs, where registration in recent years has exceeded 1,500.

INTER-AMERICAN CONGRESS ON BRUCELLOSIS

The Second Inter-American Congress on Brucellosis, under the auspices of the Pan American Sanitary Bureau, was held at Mendoza and Buenos Aires, Argentina, November 17–26, 1948. The United States was represented officially by Dr. James H. Steele, Chief, Veterinary Public Health Division, Communicable Disease Center, U. S. Public Health Service, who was named Chairman of the Delegation, and Dr. C. K. Mingle, Assistant Chief, Tuberculosis and Brucellosis Eradication Division, Bureau of Animal Industry. Other American participants who were invited by the Congress were Dr. Harold Harris, New York City. Dr. Horace Powell, Indianapolis, Ind., Dr. Leo Lowbeer, Tulsa, Okla., and Dr. Joseph Griggs, Claremont, Calif.

The meeting at Mendoza was devoted to research and epidemiology papers by representatives of Argentina, Chile, Colombia, Peru, Venezuela, Mexico, and the United States. Dr. Steele presented

a paper on The Epidemiology of Brucellosis in the United States at this meeting. Dr. Mingle responded at the opening session for the visiting delegates to the speech of welcome by the Minister of Health, Dr. Luis Carrillo. Dr. Carlos Grivellari, Director of Public Health, Argentine Republic, was chosen President of the Congress. Dr. Miguel Bustamente, Secretary, Pan American Sanitary Bureau, was assisted by Dr. M. Ruiz Castaneda, Secretary.

In the Mendoza area, which is in the foothills of the Andes, there is an extensive goat industry and most of the brucellosis reported is of the melitensis type. The delegates had an opportunity to visit the surrounding country to see the goat industry and observe the conditions under which the shepherds became infected. The close proximity to human habitation of the corrals and the necessary handling of the animals when they are milked create conditions which allow for human exposure to animal infection. In the urban areas many human cases are traced to unpasteurized cheese of goat origin. There are very few cattle or swine in this region and no human *Brucella abortus* or *Brucella suis* cases are reported.

The meetings were resumed in Buenos Aires on November 22, and closed on November 26. The Buenos Aires session was mainly concerned with the discussion of the diagnosis and therapy of human brucellosis. Dr. Harris spoke on the Diagnosis and Treatment of Brucellosis; Dr. Griggs on Bacterial Allergy; Dr. Powell on Therapy; and Dr. Lowbeer on The Pathology of Swine Brucellosis. Dr. M. Ruiz Castaneda of Mexico, presented an excellent paper on The Treatment of Brucellosis with Aureomycin. The Congress acted to create two permanent committees to study the problems of standardization of human serological diagnostic methods and animal disease eradication. The success of both these study groups will depend upon having a standard antigen with which to compare other antigens. The Congress believed that the antigen of the Bureau of Animal Industry, U. S. Department of Agriculture, would be the best standard to use inasmuch as it is available in very large quantities and could be readily distributed. Similar studies will also be carried on for animal serology. The Congress further agreed that the disease could not be controlled in man until it was controlled in animals.

The Second Inter-American Congress on Brucellosis unanimously voted to accept the invitation of the United States to hold the Third Inter-American Congress on Brucellosis in Washington, D. C., in October, 1950. Dr. William W. Spink, of Minneapolis, Minn., has been named Chairman of the Third Inter-American Congress on Brucellosis, and Dr. M. Ruiz Castaneda will continue as Secretary.

ARKANSAS PUBLIC HEALTH ASSOCIATION

The first Annual Meeting of the Arkansas Public Health Association was held in the Robinson Memorial Auditorium, Little Rock, December 9–11, 1948, under the Presidency of Edgar J. Easley, M.D. Registration exceeded 375 from a total paid individual membership of 700, including at least 25 organizational memberships.

It is understood that the Association is primarily interested at the present time in developing citizen support, performing some of the functions of a state health council. Out of state speakers included Felix J. Underwood, M.D., State Health Officer of Mississippi; C. C. Applewhite, M.D., Medical Director, U. S. Public Health Service, New Orleans; Edythe P. Hershey, M.D., Regional Medical Director, U. S. Children's Bureau, Dallas, Tex.; Wilson G. Smillie, M.D., Cornell Medical College, New York City; and Roscoe P. Kandle, M.D., Field Director, American Public Health Association, New York.

COUNSELLING IN NURSING SCHOOLS

Through a grant from the W. K. Kellogg Foundation, the Western Reserve University School of Nursing is exploring counselling programs. In a series of eight monthly evening lecture-discussions led by counselling experts, about 300 graduate nurses and nursing school faculty members in the Cleveland area are discussing their interest in counselling. Four of the series are still to be held. Further information from Elva H. Evans, Series Secretary, 2063 Adelbert Road, Cleveland 6.

DR. SHEPARD TO UPPSALA UNIVERSITY

In September a new policy was inaugurated by the National Institutes of Health of sending promising young research officers to outstanding laboratories both in the United States and abroad for further study and collaborative research with renowned scientists.

The first of such trainees, Charles C. Shepard, M.D., of the Division of Infectious Diseases, has been accepted by Uppsala University, Sweden, for special training in chemical biophysics under the tutelage of Professor Arne Tiselius, who has a world-wide reputation as teacher and investigator in this field.

FULLER AWARD TO ENGINEER CUNNINGHAM

The Fuller Award of Merit, given annually by the American Water Works Association for distinguished service in the water works field, was recently presented to M. B. Cunningham, Superintendent and Engineer of Oklahoma City. The presentation was made at the annual meeting of the Southwest Section, AWWA, in Galveston in October at which the following officers were elected:

Director: M. B. Cunningham
Chairman: Delbert W. Robinson, Water Works Engineer, Community Public Service Company, Fort Worth, Tex.
Vice Chairman: J. R. Pierce, General Water Works Corporation, Pine Bluff, Ark.

AN INTENSIVE VD CAMPAIGN IN NEW YORK CITY

Early in November, 1948, the New York City Department of Health, in cooperation with the State Health Department, the county medical societies, and the U. S. Public Health Service began an intensive case finding and public information program on venereal diseases.

The 9 point program includes:

1. Organization of community groups, particularly in high VD rate areas, to which literature, display material, lectures, etc., will be supplied.
2. The encouragement of routine blood tests of all new patients by private physicians.
3. Encouragement of routine blood tests industry-wide.
4. Information service to labor unions.
5. Coöperation with colleges and universities in their interest in the scientific, educational and social aspects of VD.
6. Assistance to welfare agencies in their VD programs.
7. Treatment of VD patients by private physicians and in clinics rather than in hospitals to be encouraged.
8. Facilities for free treatment at social hygiene stations wherever necessary.
9. A long range program for the permanent display of posters, especially in places of employment.

By early December, the Commissioner of Health, Harry S. Mustard, M.D., described the program as an "unqualified success." The number of persons coming to social hygiene clinics more than doubled during the first month, and requests for free penicillin rose 400 per cent. In reporting to the Mayor, Dr. Mustard said,

> These results were made possible by the citizens of this city, the business and labor organizations, religious groups, civic bodies, educational institutions, and our colleagues in other city departments. The keen awareness of the difficulties of the problem, and the courageous acceptance of the duties imposed in an educational campaign of this nature, are tributes to the greatness of the people of this city. The medical profession made important contributions, both in terms of treatment and education. . . . Special commendation must be reserved for those great media of communi-

cation—the press, the radio, the motion picture, television, and bill boards—which set aside taboos and attacked the problem forthrightly and intensively. Two other great media, the subway car cards and the giant electric signs—both so peculiarly New York's own—made significant contributions.

FLUORINE TREATMENT IN NEW YORK CITY

A program of reducing tooth decay by fluorine treatment was begun in October by the New York City Health Department. Topical application is being made to the teeth of 50,000 preschool and school children attending health department clinics in 105 schools and 14 district health centers. This treatment is recommended by the American Dental Association and the U. S. Public Health Service. Dentists are being urged by the health department to use topical application of 2 per cent sodium fluoride solution as an aid in caries control.

NURSE RECRUITMENT ACHIEVES SUCCESSFUL RESULT

The National League of Nursing Education, New York, announces that over 700 groups throughout the country have been stimulating the recruitment of student nurses. In 1948, 43,000 new student nurses were enrolled, which is a total of 5,000 more than in 1947.

According to the League, during the past two years the responsibility for promotion was assumed by the American Hospital Association, assisted by the Advertising Council. Beginning in 1949, central planning will be carried on by the nursing organizations, with the League having responsibility for administering the project.

NEW APPOINTMENTS AT THE AMERICAN HEART ASSOCIATION

Two new appointments have been made at the American Heart Association. On January 15, John W. Ferree, M.D. became Director of the Public Health Division of the Association, a new position created to emphasize and promote the public health aspects of the Association's program. A second appointment on January 1 was that of Rome A. Betts as Executive Director. These are the first two appointments since the recent reorganization as a national voluntary health agency with state and local affiliates throughout the United States.

Since early 1947, Dr. Ferree has been Associate Director of the National Health Council, of which the Heart Association is one of the member agencies. As the National Health Council staff representative on the National Advisory Committee on Local Health Units, he was largely responsible for the Indiana and Salt Lake City regional conferences on Local Health Units of the past year, which brought together representatives of diverse lay groups to stimulate action for improving community health services.

Besides his National Health Council background, Dr. Ferree brings to his new job experience as a practising physician, as a state health officer, as a venereal disease control officer of the U. S. Navy during the recent World War, and as Director of Educational Services of the American Social Hygiene Association. He is a Fellow of the American Public Health Association, American Medical Association, and American College of Physicians.

Mr. Betts has been General Secretary of the American Bible Society since 1942, and Associate Secretary for five years previously. He is President of the Protestant Film Commission, and a member of the City Council of Summit, N. J.

Charles A. Connor, M.D. will continue as the Medical Director of the Heart Association with special responsibilities in the field of cardiac research. The Association will conduct a drive from February 7 to 28 for a $5,000,000 fund to study and combat diseases of

the heart and circulation, which have now moved to first place as a cause of death.

MICHIGAN PUBLIC HEALTH ASSOCIATION

The 28th Annual Michigan Public Health Conference was held in Grand Rapids, December 1–3, with a registration of 600 and an attendance averaging about 1,100. The theme of the meeting was community participation in health activities and the program was built around Michigan's favorable experience in this direction.

Among those on the program were Edwin G. Williams, M.D., Chief, Radiological Health Branch, Office of Engineering Activities, U. S. Public Health Service, who discussed Public Health Aspects of Atomic Energy; Richard F. Boyd, M.D., Medical Officer, Welfare and Retirement Fund, United Mine Workers of America, formerly Illinois Director of Local Health Services, who discussed The Health Department of Today and Tomorrow; Herbert J. Dunsmore, newly appointed Public Health Engineer of Pittsburgh Department of Public Health, who discussed The Community Working Together: In Housing; and the newly appointed Michigan Commissioner of Health, Albert E. Heustis, M.D., who opened the Conference. Roscoe P. Kandle, M.D., Field Director of the American Public Health Association, brought the greetings of the Association and served as summarizer of the Conference.

The Conference voted a fund of $500 for educational purposes regarding health units, particularly to work for additional state subsidies to local health districts.

The newly elected officers are:

President: Lyman Chamberlain, Sanitarian, Eaton County Health Department
President-Elect: C. C. Slemons, M.D., Director, Grand Rapids Health Department
Vice-President: James M. Gasoway, D.D.S., Dentist, Children's Fund of Michigan
Secretary-Treasurer: Marjorie Delavan, Director, Bureau of Education, Michigan Department of Health
Representative to A.P.H.A. Governing Council: David Littlejohn, M.D., Director, Wayne County Health Department
Directors: J. G. Molner, M.D., Detroit Health Department; Georgina Reid, R.N., Wayne County Health Dept.

AMERICAN COUNCIL ON RHEUMATIC FEVER ELECTS OFFICERS

The American Council on Rheumatic Fever, which was created in 1944 to correlate the interests of various voluntary health organizations concerned with rheumatic fever and rheumatic heart disease, and to coördinate these efforts with similar activities in the field, has recently announced officers for 1949. The Council is organized under the American Heart Association and there is interlocking membership in the governing bodies of the Council and the Association.

Rustin McIntosh, M.D., has been elected Chairman of the American Council on Rheumatic Fever for 1949. Dr. McIntosh is Carpentier Professor of Pediatrics at the College of Physicians and Surgeons, Columbia University, New York City. Lawrence Linck of Chicago was elected Vice-Chairman. Among the newly elected members of the Council's Executive Committee are:

Walter Bauer, M.D., Boston
David D. Rutstein, M.D., Boston
T. Duckett Jones, M.D., New York
Homer F. Swift, M.D., New York
George M. Wheatley, M.D., New York

The organizations belonging to the Council include:

American Academy of Pediatrics
American Association of Medical Social Workers
American College of Physicians
American Heart Association
American Hospital Association
American Medical Association
American Nurses Association
American Public Health Association
American Rheumatism Association
American School Health Association

National Organization for Public Health Nursing
National Society for Crippled Children and Adults.

A.M.A. ADOPTS DEFINITION OF PUBLIC HEALTH

The House of Delegates of the American Medical Association at its meeting in St. Louis on December 1, upon recommendation of its Reference Committee on Hygiene and Public Health—Stanley H. Osborn, M.D., Chairman, adopted the following definition of public health:

"'Public Health' is the art and science of maintaining, protecting and improving the health of the people through organized community efforts. It includes those arrangements whereby the community provides medical services for special groups of persons and is concerned with prevention or control of disease, with persons requiring hospitalization to protect the community and with the medically indigent."

NUTRITION FOUNDATION MAKES ADDITIONAL GRANTS

At a recent meeting, the Board of Trustees of the Nutrition Foundation, Inc., New York City, appropriated $185,600 for research in nutrition problems, bringing to a total of $1,810,000 the awards by the Foundation to 62 universities and medical centers in North America.

Charles Glen King, Ph.D., who is the Scientific Director of the Foundation, summarized the advances through basic research made possible by the Foundation in relationship to public health, especially with reference to hypertension, the anemias, dental caries, and protein deficiencies.

FRANCIS AMORY PRIZE IS AWARDED

The American Academy of Arts and Sciences has announced the award of $21,000 which is given every seven years for outstanding work in the alleviation or cure of urological disorders.

The prize was first awarded in 1940. A 1948 award will be equally divided among the following persons:

Dr. A. B. Gutman
Dr. Charles B. Huggins
Dr. W. J. Koff
Dr. G. F. Marian
Dr. G. A. Papanicolaou
Dr. S. A. Waksman

FORD FOUNDATION TO STUDY AREAS OF USEFULNESS

The Ford Foundation, established by Henry and Edsel Ford in 1936, and with present resources of $205,000,000, now has an advisory committee of six to determine the areas of human welfare in which the Foundation can most effectively expend its funds. This committee is being asked to report by midsummer of 1949 so that the foundation may be ready to undertake an active program by 1950.

Committee members and areas they represent are:

Business: Dr. Thomas Carroll, Syracuse University
Education: Dr. Donald G. Marquis, University of Michigan; Dr. Francis T. Spaulding, N. Y. State Education Commissioner
Health: Dr. T. Ducket Jones, Harvard Medical School, and Whitney Foundation, New York
Natural Sciences: Dr. Charles C. Lauritson, California Institute of Technology
Political Science: Dr. Peter Odegard, University of California

The study to be made under the supervision of this committee will be directed by H. Rowan Gaither, Jr., San Francisco attorney and general counsel of the Rand Corporation. He will be assisted by William W. McPeak, formerly with the Information and Research Branch of the War Department, who will be in charge of the committee's New York headquarters, 75 East 56th Street. A second assistant will be Dyke Brown.

The Ford Foundation, whose President is Henry Ford II, is reported to be the largest public trust in the world. It was created as a nonprofit corpora-

tion under Michigan law "to receive and administer funds for scientific, educational and charitable purposes, all for the public welfare."

ADVISORY COMMITTEE IN HEALTH EDUCATION APPOINTED FOR NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

Announcement has recently been made of the appointment by Basil O'Connor, President of the National Foundation for Infantile Paralysis, Inc., New York, of an Advisory Committee to the Health Education Department of the National Foundation. These persons who represent various aspects of education and of health from the administrative, pediatric, and teacher training viewpoints, were called for their first meeting late in 1948.

The group consists of the following persons:

Paul E. Elicker, Sc.D.
Walter Ellsworth Hager, Ph.D.
Alice V. Keliher, Ph.D.
Harry J. Linton, M.A.
Elizabeth A. Lockwood, Dr.P.H.
William Palmer Lucas, M.D.
W. Carson Ryan, D.Ed.
Hugh R. Leavell, M.D.
Lucy S. Morgan, Ph.D.
Arthur S. Steinhaus, Ph.D.

Sally Lucas Jean is consultant in health education for the Foundation. Pauline Brooks Williamson is Chairman of the Foundation's Committee on Proposed Motion Pictures for High School Students.

NATIONAL MALARIA SOCIETY

The National Malaria Society held its 31st annual meeting conjointly with the American Society of Tropical Medicine, the American Academy of Tropical Medicine, and the American Society of Parasitologists in New Orleans, La., December 5–9, 1948. The following officers were elected:

President: Dr. Wendell Gingrich, Galveston, Tex.
President-Elect: Dr. Paul F. Russell, New York, N. Y.
Vice President: Dr. Ernest Carroll Faust, New Orleans, La.
Director: 3 year term, H. W. Van Hovenberg, Mt. Pleasant, Tex.
Editor: Frederick L. Knowles, Memphis, Tenn.

Dr. Martin D. Young, Columbia, S. C., continues as Secretary-Treasurer.

A PREVIEW OF CHILD WELFARE LEGISLATION

Conferences to preview legislation for children in the 81st Congress were held in Washington and New York in November. At all day sessions in each city various interested agencies discussed legislation to be introduced in the 81st Congress as it affects the health and welfare of children. Among the proposed bills discussed were the national school health services bill, national health insurance legislation, school lunch appropriations, the national child research bill, and the Local Public Health Services Bill of 1948. This last, which will be reintroduced in the 81st Congress under the sponsorship of the National Congress of Parents and Teachers, was discussed in behalf of the Association of State and Territorial Health Officers in Washington by John D. Porterfield, M.D., Ohio State Health Officer, and in New York by Haven Emerson, M.D.

These preview conferences were sponsored by the American Parents Committee, 52 Vanderbilt Avenue, New York 17, from which proceedings are available.

ARIZONA STATE HEALTH DEPARTMENT REORGANIZED

The Arizona State Board of Health has reorganized the State Health Department into four major bureaus as follows: Bureau of Administration, Bureau of Preventive Medical Services, Bureau of Local Health Services, and Bureau of Sanitation. Each bureau head will be

responsible directly to the Director of Public Health and will in turn supervise the activities of the various divisions included under each bureau. The Bureau of Local Health Services will include divisions of local health administration and public health nursing, and several consultant services such as nutrition, medical social work, dental health, and mental health. Bureau and division personnel will serve as consultants for the personnel of local health units in the various counties.

RHODE ISLAND PIONEERS IN DENTAL HEALTH

By a coöperative agreement between the State Department of Health and the Rhode Island Hospital, an expanded long-range program of improving the dental health of the state has been undertaken by the hospital's Joseph Samuels Dental Clinic for Children. In this program, all preschool children will be eligible for dental care, priority being on the basis of need for dental care. J. S. Wisan, D.D.S. is in charge of this part of the program.

40TH OKLAHOMA COUNTY WITH LOCAL HEALTH SERVICE

The Garvin (Okla.) Health Department was organized on November 1, thus becoming the 31st full-time local health department in the state and the 40th county to have such service. Presently it is without a medical health officer, but it is currently being served by the Cleveland County Health Officer, O. R. Gregg, M.D., who will then be supervising the health of about 60,000 persons.

STUDY OF VENEREAL DISEASE CONTROL IN MICHIGAN

A study of case finding in venereal disease control is being made under the joint sponsorship of the Michigan Department of Health and the U. S. Public Health Service, with the coöperation of the local health departments of the state. The object is to find out what is wrong with the current methods of case finding. The study is set up so that within 24 hours after a patient with venereal disease has been interviewed at the Michigan Rapid Treatment Center at Ann Arbor or the Social Hygiene Clinic, Detroit, investigation of contacts can begin. Research began November 1 and will continue until June 30, 1949.

FLORIDA ACTS TO PREVENT POLLUTION OF WATER SUPPLIES

The recent Public Health Engineering Conference held in Gainesville, Fla., and sponsored by the Civil Engineering Section of the University of Florida College of Engineering, had as its theme the protection of ground and surface water supplies from pollution by domestic sewage or industrial wastes. More than 180 representatives of official health agencies and other federal, state, and local departments of government, and representatives of industry, consulting engineers, and professional societies attended. One of the specific acts of the Conference was the formation of The State Coordinating Committee on Surface and Underground Water Pollution Prevention and Abatement, with Professor John E. Kiker, Jr., University of Florida, as Chairman.

PHARMACEUTICAL MANUFACTURERS' AWARD

The National Institutes of Health received the American Pharmaceutical Manufacturers' Association 1948 Scientific Award. It was presented by Ernest E. Irons, M.D., President-Elect of the American Medical Association, at a dinner in New York, on December 7. Dr. Rolla E. Dyer, Director of the Institutes, gave the acceptance address. The award was made at an all day and evening session at which new and basic information on major research progress in drug therapy was reported. Previous

awards have been given to the National Research Council, the Rockefeller Institute for Medical Research, and the American Medical Association.

ARMY RESERVE COMMISSIONS FOR INDUSTRIAL HYGIENISTS AND INDUSTRIAL HYGIENE ENGINEERS

The Department of the Army announces the availability of reserve commissions in the Army of the United States to properly trained industrial hygienists and industrial hygiene engineers. The basic commission is First Lieutenant in the Allied Medical Sciences Section, Medical Service Corps, Medical Department Reserve. Higher ranks will depend upon suitable educational and experience qualifications. Further information, from the local Reserve Unit Headquarters in your area, The Adjutant General, Department of the Army, Washington 25, D. C., or from Department of the *Army Circular No. 210,* July 14, 1948.

BORDEN AWARD TO DR. PAPANICOLAOU

George N. Papanicolaou, M.D., Professor of Clinical Anatomy, Cornell University Medical College, has been awarded the 1948 Borden prize for outstanding contribution in the field of medical science by a faculty member of an American medical college. The award, presented at the recent annual meeting of the Association of Medical Colleges was for work in developing tests for early detection of cancer.

FRANCES STERN MEMORIAL SCHOLARSHIPS

On October 17, in Boston, a memorial service was held for Frances Stern whose death occurred in December, 1947. Her chief interest was the Food Clinic at the Boston Dispensary. Because of her efforts, Tufts College has established a new course in nutrition and dietetics which includes the Food Clinic Course at the Boston Dispensary. The course for graduate students leads to a Master's Degree in Education.

Miss Stern's friends as a memorial to her have established a Frances Stern Scholarship Fund, the income from which will be used to help deserving students complete this course of study. Contributions and inquiries should be sent to Frances Stern Scholarship Fund, 25 Bennett St., Boston 11.

HEALTH OFFICER FOR PLACER COUNTY

Placer County, population about 30,000, is the newest California county to have a full-time health officer. He is Saul Ruby, M.D., formerly San Diego County director of communicable diseases.

MEDICAL SCHOOLS TO RECEIVE LARGE FUNDS FOR PSYCHIATRY TRAINING

In accordance with the recommendation of the National Advisory Mental Health Council at a recent meeting in Washington, the Surgeon General of the Public Health Service, Dr. Leonard A. Scheele, has approved the applications of 42 medical schools in the United States to receive federal funds totalling $1,498,333 for developing or expanding training in psychiatry for undergraduate medical students. Funds will be made available for the school year 1949–1950 and will be paid in annual allotments over a three year period.

The program making psychiatric training available to undergraduate medical students was developed as a result of representations by health authorities that all physicians need to be familiar with the effect of the emotions on the general health of the individual, and that all physicians should be trained to recognize the signs of incipient mental disturbances. The importance of early recognition as a part of preventive medicine was stressed by the Surgeon General.

According to Dr. Scheele, the size of each grant was determined by pro-rating

the requirements for the school against the funds appropriated for the purpose under the National Mental Health Act. Funds average about $35,000 as a total grant for three years.

OKLAHOMA PUBLIC HEALTH ASSOCIATION

The Annual Meeting of the Oklahoma Public Health Association was held in the State Capitol Building, Oklahoma City, December 6–8, 1948, under the Presidency of Hardy Watson. The purpose of the Association is "to assist in protecting and promoting public health, to advance the public health program of the State of Oklahoma, and to provide for the enlightenment and scientific advancement of its members through the interchange of ideas and experience."

About 400 persons attended the meetings in which several persons from out of the state participated, including H. F. Kilander, Ph.D., New York; Pearl Shalit, R.N., Washington, D. C.; Roscoe P. Kandle, M.D., Field Director, American Public Health Association, New York; and William T. Ingram, M.P.H., Engineering Field Associate, American Public Health Association, New York.

A constitution and by-laws were adopted looking toward a prospective affiliation of the Oklahoma Public Health Association with the A.P.H.A.

CONNECTICUT PUBLIC HEALTH ASSOCIATION

The fall meeting of the Connecticut Public Health Association was held in Hartford on December 8 with nearly 200 persons in attendance. The program was featured in the morning session with a panel discussion, "What and How To Tell the Public," under the Chairmanship of Nell McKeever, Health Education Consultant, U. S. Public Health Service, and including among the participants a health educator, a health officer, a laboratory technician, a medical social worker, a nutritionist, an office manager, a public health nurse, a sanitarian, and a statistician.

At the luncheon session the speaker was James R. Miller, M.D., Trustee of the American Medical Association, and a delegate to the World Health Organization meeting in Geneva, who spoke on the WHO Assembly.

The afternoon session was notable among other things for a panel discussion on chronic diseases in Connecticut from the public health standpoint. Participants included James C. Hart, M.D., Acting Director of the Bureau of Preventable Diseases, Connecticut State Department of Health; Charles Bingham, M.D., Chief of Medical Service at the Rocky Hill Hospital for Chronic Illness; Alfred L. Burgdorf, M.D., Health Officer of Hartford; Eckka Gordon, Director of Social Service, Grace-New Haven Community Hospital; William Horton, M.D., Medical Director of the State Welfare Department; and Dorothy Peck, R.N., Public Health Nursing Consultant, State Health Department. Other subjects on the program included health aspects of pollution control by Warren Scott of the Department of Sanitary Engineering, and a program proposed for the conservation of hearing in children by Florence A. Browne, M.D., Child Hygiene Physician, State Health Department.

The President of the Connecticut Public Health Association is George B. Davis, M.D., of Norwalk. The Secretary is Muriel Bliss, Ph.D., of Hartford.

U.S.P.H.S. REORGANIZES ENGINEERING ACTIVITIES

As a result of the passage by the 80th Congress of the Water Pollution Control Act, the U. S. Public Health Service has reorganized its engineering activities. The former sanitary engineering division has been replaced by two divisions, on sanitation and on water pollution control, each of which will be under the

supervision of Assistant Surgeon General, Mark D. Hollis, who is the chief sanitary engineering officer of the Service.

The division of sanitation, Sanitary Engineer Director Callis H. Atkins, Chief, now is responsible for all former sanitary engineering division activities except water pollution control and research in environmental sanitation. The division of water pollution control with Sanitary Engineer Director Carl E. Schwob as Chief, will carry out the terms of the Water Pollution Control Act, which provides for financial and technical assistance to the states in the planning and execution of their water pollution control activities. It will also be in general charge of the Environmental Health Center at Cincinnati which is engaged in basic research and investigations in the field of water and sewage treatment, and milk and food sanitation.

WISCONSIN PUBLIC HEALTH CONFERENCE MEETS IN MADISON

The meeting of the Wisconsin Public Health Conference was held December 20–21 in Madison under the sponsorship of the Wisconsin Public Health Council, the Wisconsin Association for Public Health, the University of Wisconsin, and the Wisconsin Board of Health.

Featured at the first session was a symposium on local health units for the state in which outside speakers included Haven Emerson, M.D. of New York, Chairman of the A.P.H.A. Subcommittee on Local Health Units; John W. Ferree, M.D., Associate Director, National Health Council; Roscoe P. Kandle, M.D., Field Director, A.P.H.A.; and Vlado A. Getting, M.D., Massachusetts State Commissioner of Public Health.

At the Conference session on December 21 the Wisconsin Association for Public Health was formally organized. A Constitution and By-Laws were adopted covering the objectives of the Association, "to promote and protect public and personal health."

More than 580 persons were in attendance, including Frank V. Meriwether, M.D., Medical Director, U. S. Public Health Service, Chicago; Charles F. Sutton, M.D., Illinois State Department of Public Health; A. J. Chesley, M.D., State Health Officer of Minnesota; Vernon M. Winkle, M.D., of the State Department of Public Health, Kansas; and C. L. Putnam, M.D. of the Iowa State Department of Health. Other speakers included Basil C. MacLean, M.D., Director of Strong Memorial Hospital, Rochester, N. Y., on "Coordination of Hospitals and Health Departments"; G. D. Cummings, M.D., Director of the Bureau of Laboratories in the Michigan Department of Health on "The Functions of Public Health Laboratories"; Ellis S. Tisdale, Senior Sanitary Engineer, U. S. Public Health Service on "The Functions of a Sanitarian in a Local Health Department"; and Frederick S. McKay, D.D.S. of Colorado Springs on "Fluorine in the Prevention of Dental Decay." Other speakers were Paul H. Stevenson, M.D. of the U. S. Public Health Service, on "Local Public Health Mental Hygiene Activities"; Margaret Taylor, R.N., Director, Public Health Nursing Course, University of Minnesota, on "The Public Health Nurse Rations Her Time," and a panel on "Local Public Health Programs" in which the visitors participated.

A.M.A. AGAIN ENDORSES LOCAL HEALTH UNITS

At the interim session of the House of Delegates of the American Medical Association meeting in St. Louis on December 1, the following resolution was adopted:

WHEREAS, No amount of medical care of persons already sick will substantially reduce the incidence of illness; and

WHEREAS, The traditional position of the

American Medical Association has been one of firm support of public health service, in fact, this constitutes a major element of the ten point national health program of the American Medical Association, and

WHEREAS, Large numbers of local areas and counties in the United States are not now and never have been covered by adequate sanitary and other public health services, and

WHEREAS, The Surgeon General of the U. S. Public Health Service has announced that one of his first major objectives is assistance in development of local health units throughout the nation to meet this fundamental need, and

WHEREAS, The medical profession has now an opportunity to exert constructive leadership in this matter, through the national, constituent state and component county medical societies, Therefore be it

RESOLVED, That the House of Delegates reaffirm its abiding interest in the necessity for the provision of full-time modern public health services at the local and community level, including sanitation and all the services usually considered essential for the preservation of the public health, and be it further

RESOLVED, That the U. S. Public Health Service be commended for, and encouraged in, its efforts for the further development of local health units for these purposes, and be it finally

RESOLVED, That the Board of Trustees be commended for its efforts in furthering full-time local health units and urged to continue actively all proper procedures to the end that local public health service shall become adequate throughout the nation.

DEVELOP SCHEME FOR INTERSTATE CONTROL OF RABIES

Interstate action to check the spread of rabies was initiated by the States of New York, New Jersey, and Pennsylvania in December, 1948, at a conference of officials of the three states, held in New York City. The conference was sponsored by New York's Joint Legislative Committee on Interstate Cooperation, headed by Assemblyman Harold C. Ostertag, and by the Council of State Governments.

Pursuant to a conference recommendation, the three states will coördinate interdepartmental efforts to control rabies, and within the states set up a tri-state continuing committee which will synchronize the rabies control work in the region. New York State has already coördinated its own rabies control program through an Interdepartmental Committee on which representatives of the Departments of Health, Conservation, and Agriculture and Markets serve.

The tri-state action was taken as the result of an epidemic of rabies in central New York State which has continued since 1944, and which affects a number of counties bordering on New Jersey and Pennsylvania.

Noticed first among dogs, the disease is now virtually under control in this species in New York as the result of mass dog vaccination programs. The fox has now replaced the dog as the chief vector. Up to mid-December of 1948, only 23 rabid dogs were reported for upper New York State for the year, but 244 rabid foxes had been recorded. Last year 52 rabid dogs were reported in Upstate New York and 275 rabid foxes.

Cattle are the chief targets of New York's "crazy foxes," the conference was told. Farmers lost 440 cows in 1946 from rabies, 329 in 1947, and 210 in 1948. While these losses appear to be declining, both health and agricultural authorities believe it is due to the fact that the disease is now spreading in areas where dairy herds are more scattered, rather than to subsidence of the disease itself.

Pennsylvania authorities participating in the conference at which the inter-state control program was inaugurated, said that 22 rabid foxes were reported in 1946 in Pennsylvania counties bordering New York's infected areas, but the incidence of the disease has apparently declined since then.

Dr. C. P. Bishop, Director of Pennsylvania's Bureau of Animal Industry, cited the bounty system employed by that state as a possible factor in checking the disease among foxes. He

pointed out that Pennsylvania paid out $158,697 in bounties on predators during the fiscal year ending May 31, 1948, and that the chief predators taken, numbering some 33,000, were foxes.

New Jersey authorities reported no incidence of fox rabies, as yet, but were alerted to the possibility of its appearance when New York authorities pointed out that many cases have been reported in Sullivan County, New York, on the New Jersey border. Dog rabies continues to be the prevalent problem in New Jersey, Dr. J. S. McDaniel of the New Jersey Health Department said, particularly in Mercer, Somerset, Union and Middlesex Counties.

New York State's efforts to check the disease in foxes have taken the form of an intensive trapping program carried on through the State Conservation Department by 27 professional trappers. Trapping has been done in 50 mile square control areas, where the disease has been most prevalent, and some 4,000 foxes have been taken in these areas. A check is now under way to determine whether this method is effectively halting the spread of the disease.

John Wilson, coördinator of the rabies program for the New York State Conservation Department, expressed the belief at the conference that the professional trapping method would prove more effective than the bounty system advocated by many sportsmen, inasmuch as the bounty hunters would not necessarily take foxes from the infected areas and would not trap down to the residual breeding stock as the professional trappers do.

Dr. Alexander Zeissig, veterinary consultant of the New York State Health Department, who has directed the dog vaccination program for that state emphasized the importance of public education and voluntary coöperation in the mass vaccination programs as the most effective methods yet devised for combating rabies. He pointed out that compulsory vaccination programs, where instituted in other states, have not been successful, whereas, under the voluntary methods, correlated with a program of public education, from 70 to 90 per cent of the dogs have been vaccinated in infected areas in New York with a corresponding reduction of canine rabies.

NEW YORK STATE PLANS LARGE MEDICAL AND PUBLIC HEALTH CENTERS

In a recent Report of the Temporary Commission on the Need for a State University, submitted to the Governor and the Legislature of the State of New York by a Committee under the Chairmanship of Owen D. Young, it is stated that the conditions of the times require a broadening of the public provisions for higher education on all fronts. The times also require more effective assurance of equality and of educational opportunities for all qualified youth. In the opinion of the Commission these ends can best be served by a long-range program that would include the establishment of a state university and the establishment of two medical centers by the state, including schools of medicine, dentistry, nursing, and public health, one in up-state New York, and one in the New York City metropolitan area. According to the report, this program may be achieved either by taking over and expanding existing private institutions or by building new ones, or by state aid. In addition, it is proposed that there should be established another state-supported school of veterinary medicine at one of the medical centers, and consideration should be given of financial assistance to private medical schools where a special need exists.

The Commission concludes that New York State uses about one-third more doctors than it educates and that expansion is necessary if New York State contributes its share of the supply of doctors required by the expanding

health needs of the state and the nation. A serious shortage of dentists exists. More than half of the New York students of dentistry attend other state schools, reaching a total of more than 800 dental students per year going out of the state beyond those who come in from other states. It is suggested that provisions be made to supply dental hygienists, dental technicians, and dental assistants.

Facilities for the training of nursing students, of practical nurses, and of veterinarians should be expanded.

"The state has special need for more psychiatrists and public health doctors which can be met by medical centers in which appropriate emphasis is given to each of the health service needs." "Practitioners in the health professions need inservice training in new methods of treatment, as well as consulting service, which can best be provided by medical centers."

Many rural areas, in the opinion of the Commission, are suffering from a shortage of dentists. The entire plan should have as a major objective the preparation of physicians and dentists for the rural areas where the need is most acute.

NEW CANCER FILM AVAILABLE

A new film titled "Cancer: The Problem of Early Diagnosis," which is the first in a series of motion picture films on cancer, will be available for loan or purchase after February 1, according to an announcement made jointly by the co-sponsoring agencies—the American Cancer Society, Inc., New York City, and the National Cancer Institute, U. S. Public Health Service, Bethesda, Md.

This is a 16 millimeter color film with sound, said to have a running time of 30 minutes. It was produced under the direction of Charles S. Cameron, M.D., Medical and Scientific Director of the A.C.S. and Austin V. Diebert, M.D., Chief of the Cancer Control Branch of the National Cancer Institute. A 16 page pamphlet describing the film and suggesting ways to use it has been prepared for program chairmen.

According to the co-sponsors, prints for single showings may be had from state cancer society offices, state health departments, or from Association Film's regional offices located in New York, Dallas, Chicago, and San Francisco. Information about this film and five succeeding films in the proposed series may be obtained from the American Cancer Society, 47 Beaver Street, New York 4, or the National Cancer Institute, Bethesda 14, Md.

PERSONALS

CALLIS H. ATKINS,† Sanitary Engineer, heads the newly created Division of Sanitation of the U. S. Public Health Service. This Division has the responsibilities of the former Sanitary Engineering Division except water pollution control and research in environmental sanitation.

WILL H. AUFRANC, M.D.,* of the staff of the U. S. Public Health Service, who served as Venereal Disease Consultant in the District Office in San Francisco, Calif., became Assistant Chief of the Division of Venereal Diseases, U. S. Public Health Service, Washington, effective December 1, 1948.

ANDRE BAUDE, M.D., who has been on the staff of the State Tuberculosis Sanatorium at Norton, Kans., since 1942, is Acting Director of the Division of Tuberculosis Control, Kansas State Health Department.

AMBROSE P. BELL,† former public health engineer for the Washington, D.C., Health Department, was appointed in November, 1948, to the new executive post of Sanitary Engineer, Louisville-Jefferson County, Kentucky, Board of Health.

CHARLES H. BLANDFORD, M.D.,† formerly Director of the Hardin County Kentucky Health Department, has been appointed Director of the Marion County Health Department, with headquarters at Ocala, Fla.

COL. HERBERT M. BOSCH,* Chief of the section on Environmental Sanitation, Minnesota Department of Health, was decorated by the Netherlands Government as a Commander with Swords in the Order of Orange-Nassau in a ceremony held on December 16, 1948, at the University of Minnesota. The decoration was presented on behalf of his government by the HON. L. C. WILTEN, Minneapolis Consul for the Netherlands.

SARAH H. BOWDITCH, M.D.,† has been named Assistant Director of the Division of Venereal Diseases in the Massachusetts State Department of Health. A graduate of the Harvard School of Public Health, she served during World War II as a lieutenant-colonel in the army medical corps.

LYNN BYRNE is the new business manager for the Divide-McKenzie-Williams Counties Health Department with headquarters in Williston, N. D.

MARY T. COLLINS,† on September 1, 1948, became Secretary of the A.N.A. and N.O.P.H.N. Joint Committee on Nursing in Prepayment Health Plans.

LOUISE G. CAMPBELL,† Special Field Consultant, New York State Committee on Tuberculosis and Public Health, on February 1, became Associate in Health Education of the National Tuberculosis Association, New York City.

DOMENIC CAPONE, S.A. Engr. (R),† is Area Supervisor of A Fly Control Project, U. S. Public Health Service, at the Communicable Disease Center, Phoenix, Ariz., where he will be working in conjunction with the Phoenix City Health Department for the next 5 years.

MADGE L. CROUCH for the past year on the teaching staff of the Methodist Hospital in Brooklyn, N. Y., has become Assistant Director of the Red Cross National Blood Program Nursing Division.

GEORGE A. DAME, M.D.,* Director of the Bureau of Local Health Service, Florida State Board of Health, was elected Chairman of the Section on Public Health, Southern Medical Association, at the meeting held in Miami, Fla., October 25–28.

LT. COL. EDWARD J. DEHNE, M.C.,† recently received a decoration and diploma nominating him an officer in the Order of Leopold II by the Belgian Government, in recognition of his wartime services in the European Theatre as a Public Health Specialist.

MARGARET DILL,† who has been on leave of absence to serve as Acting Director of Public Health Nursing Education for the Louisville-Jefferson County, Kentucky Board of Health for the past 6 months because of the illness of the Director, ELIZABETH GOFORTH, has rejoined the staff of the American National Red Cross, and Miss Goforth has returned to duty.

JAMES A. DOULL,* formerly Chief of the Office of International Health Relations, U. S. Public Health Service, Washington, D. C., became Director of Research at the American Leprosy Foundation (Leonard Wood Memorial) November 1, with headquarters in Washington, D. C. As Director, Dr. Doull will conduct studies on the epidemiology of leprosy.

MAJOR FRED H. DOWNS, JR., MSC,* resigned as Director of the Division of Milk and Dairy Products, Louisiana State Health Department on November 18, to return to extended

* Fellow A.P.H.A.
† Member A.P.H.A.

active duty with the United States Army, assigned as Sanitary Engineer, Office of Surgeon, Headquarters Fourth Army, Fort Sam Houston, Texas.

J. M. GORDON, M.D.,† Director of the Carter County Health Department, Ardmore, Okla., resigned in October to accept a position with the veterans' hospital at Legion, Tex.

JOHN F. HACKLER, M.D.,* former Professor of Preventive Medicine and Public Health at the University of Oklahoma School of Medicine, Norman, was recently named Director of the Muskogee County Health Department, Oklahoma.

WINIFRED HELEN HILLARD, R.N.,† formerly Assistant in School Health Education for the District of Columbia Tuberculosis Association, has joined the New York Tuberculosis and Health Association as Health Education Assistant in the Health Education Division.

BENJAMIN G. HORNING, M.D., M.P.H.,* Director of the Division of Medicine, W. K. Kellogg Foundation, Battle Creek, Mich., left on November 30 for Mexico, Central and South America on a 6 month official trip.

MARGARET D. HOWELL, D.M.D., was appointed Children's Dentist in the Division of Dental Hygiene, Connecticut State Department of Health, effective October 1. She will be concerned primarily with the continued provision of dental care to children in rural areas where there is a current shortage of resident dentists.

PAT KELLEY, former Executive Secretary of the San Francisco Tuberculosis and Health Association, is now Director of the American Social Hygiene Association's Western Regional Office with headquarters at 995 Market Street, San Francisco, and a territory including Arizona, California, Idaho, Montana, Nevada, Oregon, Utah, and Washington.

GLADYS KEYES, who joined the staff of the Contra Costa County Health Department, Calif., in November, 1946, has been appointed as the Director of Public Health Nursing, succeeding EDNA ROBINSON, resigned.

CAROLYN KINGDON,† on November 1, became the first Executive Secretary of the National Foundation for Infantile Paralysis, Honolulu Chapter.

AUBREY MALLACH† of the Health Council of Greater New York, who has been its Associate Director since June, 1947, was recently appointed Executive Director.

CLAYTON B. MATHER, M.D.,† formerly Director of the Monroe County, Michigan, Health Department, was appointed Health Officer of Greenwich, Conn., effective October, 1948.

ALBERT MILZER, PH.D.,† Director of the Department of Bacteriology and Virology of Michael Reese Hospital, Chicago, has recently been awarded a grant of $1,000 by the Committee on Scientific Research of the American Medical Association to conduct a survey of virus and rickettsial diseases in the Chicago area.

HAROLD G. NELSON, M.D., has succeeded C. H. KINNAMAN, M.D., as Director of the Division of Epidemiology, Kansas State Health Department. Dr. Kinnaman will continue in a consultant capacity, and will be directly in charge of special programs.

ARTHUR W. NEWITT, M.D.,* Senior Surgeon of the U. S. Public Health Service, on November 1 became tuberculosis control officer for the State of Michigan having resigned a similar position in Chicago.

JACK O'BRIEN has been appointed Public Health Assistant with the Division of Public Health Laboratories, North Dakota State Health Department, Bismarck.

GEORGE W. PAETH, M.D., has been ap-

pointed as Deputy District Health Officer of the Washington-Yamhill District Health Department in Oregon.

ELNA I. PERKINS* has resigned as health education worker with the New York State Food Commission to accept a teaching post in health education at Springfield (Mass.), College.

KURT POHLEN, PH.D.,* has been appointed Assistant Professor in the Department of Hospital Administration of St. Louis University Graduate School, Mo., where he will teach public health and hospital statistics. He continues also as Director of Research and Statistics of the Catholic Hospital Association of the United States and Canada.

M. ALLEN POND* has been appointed Assistant Chief of Engineering Activities of the U. S. Public Health Service to assist MARK D. HOLLIS,† the Chief Sanitary Engineering Officer, in the administration of programs of the Divisions of Sanitation and Water Pollution Control and the Environmental Health Center at Cincinnati, Ohio.

MILA E. RINDGE, M.D.,† who completed her graduate work in Public Health at Columbia University, New York City, last June, has been appointed epidemiologist in the Bureau of Preventable Diseases of the Massachusetts State Department of Health.

MAURICE A. ROE, M.D.,† has been appointed as Regional Medical Director for Region 8 of the U. S. Public Health Service with headquarters in Dallas, Tex. Dr. Roe succeeds KNOX E. MILLER, M.D., who has been assigned to the Milwaukee City Health Department.

MEFFORD R. RUNYON has been elected Executive Vice-President of the American Cancer Society, New York, N. Y., effective February 1, succeeding DOUGLASS POTEAT, who resigned to return to the legal field. Mr. Runyon was formerly Executive Vice-President and Director of Columbia Records, Inc., and last spring directed the Society's field organizations.

MATHILDA SCHEUER, R.N.,* was recently chosen President of the Pennsylvania State Nurses Association at the annual convention in Pittsburgh.

CARL E. SCHWOB,* Sanitary Engineer of the U. S. Public Health Service, has been made head of the newly-created Division of Water Pollution Control of the Service. The new division is charged with carrying out the Public Health Service water pollution control responsibilities as stated in Public Law 845, enacted by the 80th Congress.

BRIGADIER GENERAL JAMES STEVENS SIMMONS, U.S.A.,* Rtd., Dean of the Harvard School of Public Health, received a "Citation of Merit" on November 6, 1948, from Davidson College, Davidson, N. C., for outstanding contributions in the fields of Preventive Medicine and Public Health. General Simmons received his B.S. degree from Davidson College and the honorary degree D.Sc.

LEONID S. SNEGIREFF, M.D.,† recently Medical Director of the New Jersey Division of the American Cancer Society, now heads the research and teaching project in cancer control at the Harvard School of Public Health in Boston.

MELVILLE A. TAFF, JR.,† has joined the Hawaii Department of Health as Chief of the Bureau of Health Statistics. He has held a similar position with the Louisiana State Health Department for the past 5 years.

RAY E. TRUSELL, M.D.,† formerly New York State Health Department epidemiologist has been appointed full-time Professor of Preventive Medicine

* Fellow A.P.H.A.
† Member A.P.H.A.

and Public Health in the Albany (New York), Medical College.

JOYCE MOORE TURNER, formerly nutritionist with the Queens, New York, Chapter of the American Red Cross, has been appointed Nutrition Consultant of the Harlem Committee, New York Tuberculosis and Health Association.

ANTOINE B. VALOIS, M.D.,† Superintendent of the Division of Vital Statistics of the Montreal Department of Health, was elected Chairman of the Section on Vital Statistics of the Canadian Public Health Association at the annual meeting held in Ottawa, on October 18.

LEROY W. VAN KLEECK, Principal Sanitary Engineer in charge of field supervision of sewage treatment plants for the Connecticut State Department of Health, received the George Bradley Gascoigne plaque and the Charles Alvin Emerson award for meritorious and outstanding service to the Federation, at the 1948 annual convention of the Federation of Sewage Works Associations recently held in Detroit.

HELEN M. VAN METER retired from the Bureau of Maternal and Child Hygiene, Connecticut State Health Department, on November 1, after 25 years as Regional Public Health Nurse.

CARL E. WEIGELE, M.D.,† who has been associated with the New Jersey State Department of Health since 1940, has been made Director of the Bureau of Preventable Diseases. He will also serve as Deputy Director of the Department during the Commissioner's absences.

J. M. WISAN, D.D.S., M.P.H.,* in October, 1948, became Director of the Joseph Samuels Dental Clinic for Children of the Rhode Island Hospital. Most recently Director, Division of Dental Health Education of the American Dental Association, he was formerly Chief of the Division of Dental Health, New Jersey Department of Health. He is co-editor of the Association's Dentistry in Public Health, now in press.

LULU K. WOLF, R.N.,† formerly Professor of Nursing at Vanderbilt University, has joined the faculty of the University of California at Los Angeles as Chairman of the Department of Nursing.

WILMA YORK is now a Local Field Supervisor in the Pacific Coast Office of the Metropolitan Life Insurance Company. Miss York has been with Metropolitan since 1939.

Deaths

CHARLES A. BAILEY, M.D., M.P.H.,† Hospital Consultant, Mississippi Commission on Hospital Care, Jackson, Miss., (Unaffiliated Section).

RICHARD C. BECKETT,† Sanitary Engineer for the Delaware State Board of Health for 25 years, died December 16 (Engineering Section).

GEORGE H. COOMBS, M.D., State Health Director of Maine from 1932 until 1937, died November 20 at the age of 85.

HUGH S. CUMMING, M.D.,* retired Surgeon General of the U. S. Public Health Service, and President of the American Public Health Association for the year 1931, died December 20 (Health Officers Section).

NETTIE DORRIS, M.D.,† of the Illinois State Department of Health, died October 10. She had been a member of the medical staff of the department for 15 years (Health Officers Section).

COLONEL ROBERT D. HARDEN, M.C.,† of Halls Camp, Marathon, Fla., (Health Officers Section).

ARTHUR M. JOHNSON, M.D.,* Up-State Director, State Study of Child Health Services, Rochester, N. Y. (Health Officers Section).

HARVEY P. JONES,† Jones & Henry Con-

sulting Engineers, Toledo, Ohio (Engineering Section).

EUGENE E. LAMOUREUX, M.D.,† Director of the Bureau of Preventable Diseases of the Connecticut State Department of Health, died November 22, at the age of 41 (Epidemology Section).

GERALD MORGAN,† Consultant on Disability, Social Security Board, Washington, D. C., (Unaffiliated Section).

WALTER B. MOUNT, M.D.,† Emeritus Obstetrician, Mountainside Hospital, Montclair, N. J. (Maternal and Child Health Section).

GEORGE H. RAMSEY, M.D., DR.P.H.,* Resident Lecturer in Epidemiology (on leave) Department of Epidemiology, School of Public Health, University of Michigan, Ann Arbor, (Epidemiology Section).

MICHAEL D. RIORDAN, M.D.,† Health Officer of the towns of Chaplin and Windham, Conn., for 13 years, died October 28 (Health Officers Section).

JOSEPH L. SCHWARTZ, M.D.,† President, TruTest Laboratories, Philadelphia, Pa., (Laboratory Section).

EDGAR E. SHIFFERSTINE, M.D., Chief of Rheumatic Heart Clinics, Pennsylvania Department of Health, died August 22.

BENJAMIN J. SLATER, M.D.,† Associated Medical Director of the Eastman Kodak Company, and former President, New York State Society of Industrial Medicine, died on December 6 (Industrial Hygiene Section).

ALBERT E. SMALL, M.D., M.P.H.,† Chairman, Board of Health, City of Melrose, Mass., (Health Officers Section).

HAROLD A. THOMPSON, M.D.,† City and County Bacteriologist, San Diego, Calif., (Laboratory Section).

WILLIAM C. TREDER, M.D.,† Commissioner of Health, Schenectady, N. Y., (Health Officers Section).

ORPHA L. WHITE,† Executive Secretary of the Lake County (Illinois) Tuberculosis Association since 1937, died November 14 (Public Health Education Section).

BYRON W. WOOD, M.D.,† Director, City Health Unit, Port Arthur, Tex., (Health Officers Section).

* Fellow A.P.H.A.
† Member A.P.H.A.

CONFERENCES AND DATES

American College of Physicians. New York, N. Y. March 28–April 1.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association. New Jersey Section Luncheon Meeting, Essex House, Newark, N. J. February 17.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Health Officers and Public Health Nurses of New York State. 45th Annual Conference. Lake Placid, New York. June 20–23.

Illinois Public Health Association. Edgewater Beach Hotel. Chicago, Ill. April 7–8.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

Kansas Public Health Association. Hotel Besse, Pittsburg, Kan. April 25–27.

Massachusetts Public Health Association. Amherst, Mass. June 15–17.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Missouri Public Health Association. Jefferson City, Mo. May 4–6.

National Cancer Conference. Memphis, Tenn. February 25–27.

National Society for the Prevention of Blindness. New York, N. Y. March 16–18.

National Tuberculosis Association. Detroit, Mich. Week of May 2.

New Mexico Public Health Association. Nixon Hotel, Roswell, N. M. March 23–26.

Pest Control Operators Conferences:
Canadian. University of Montreal, P.Q., Canada. February 14–16.
Purdue. Purdue University, Lafayette, Ind. February 7–11.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.

Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.

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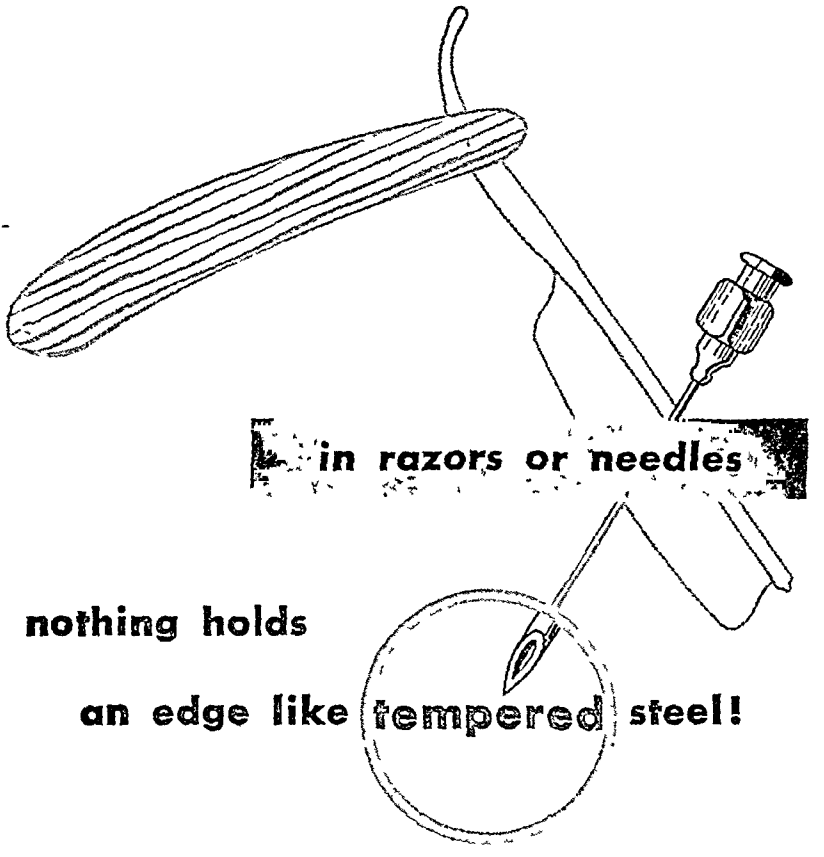
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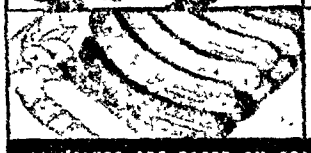
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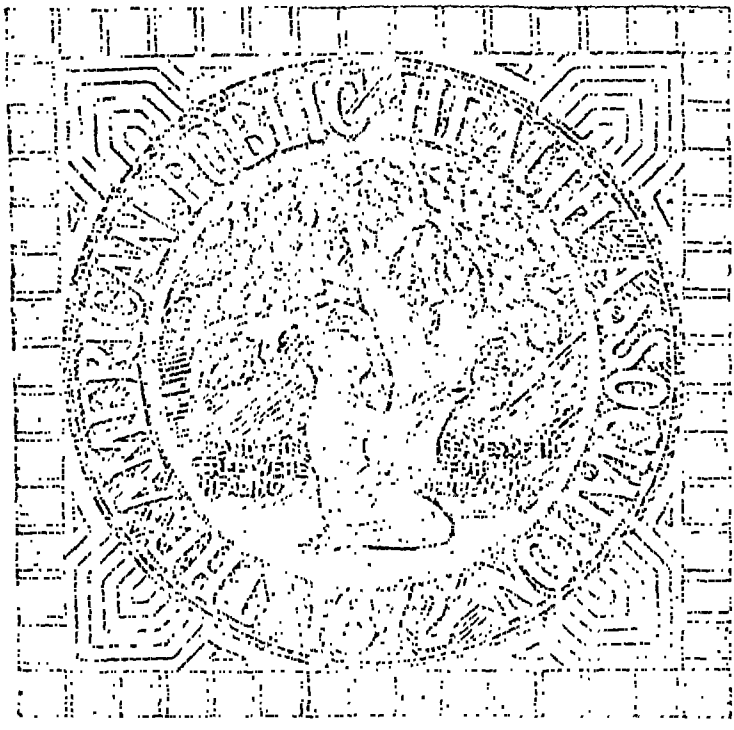
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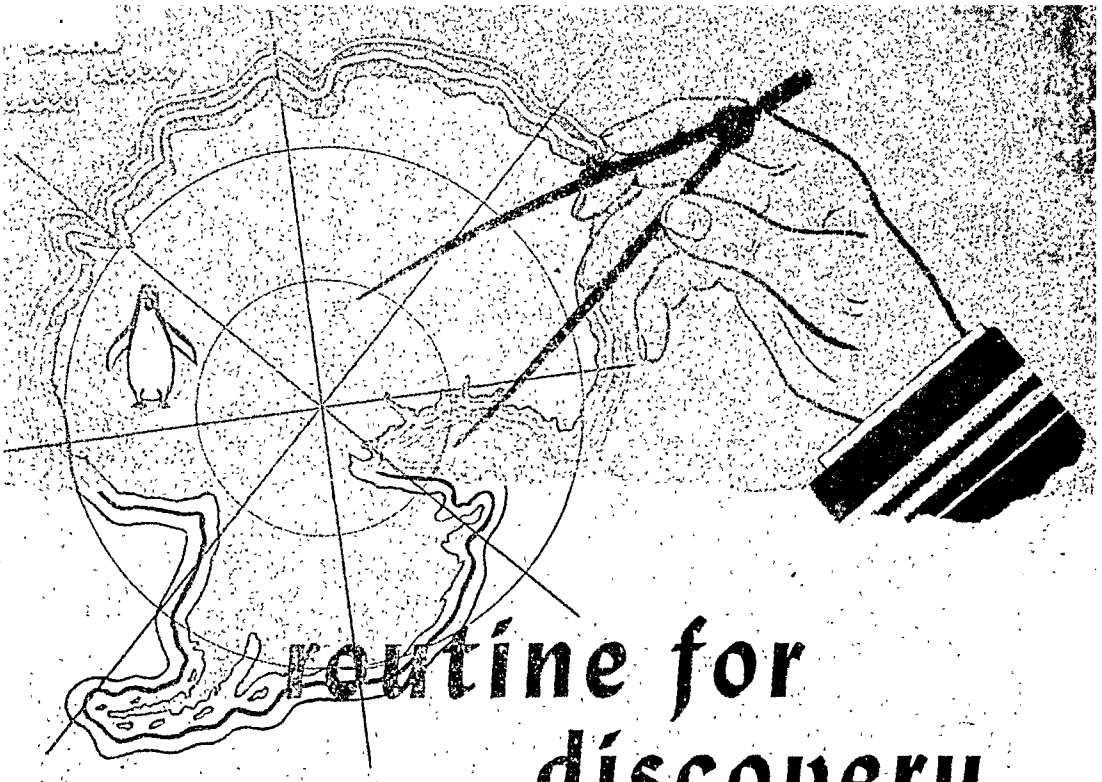
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(1) Joslin, E. P.: Postgraduate Med. 4:302 (Oct.) 1948. (2) Kemper, C. F.: Rocky Mountain M. J. 45:1092 (Dec.) 1948. (3) Pollack, H.: New York Med. 4:15 (Dec. 5) 1948.

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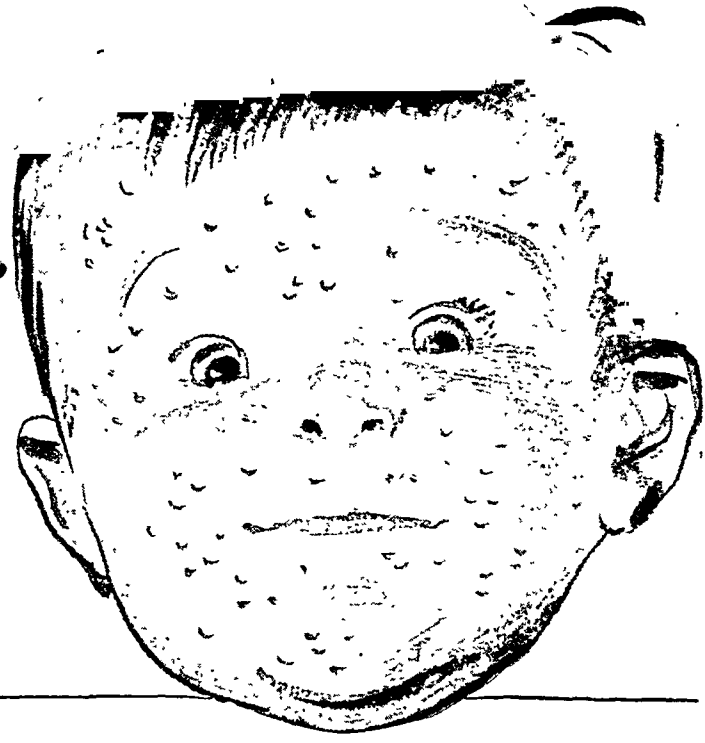
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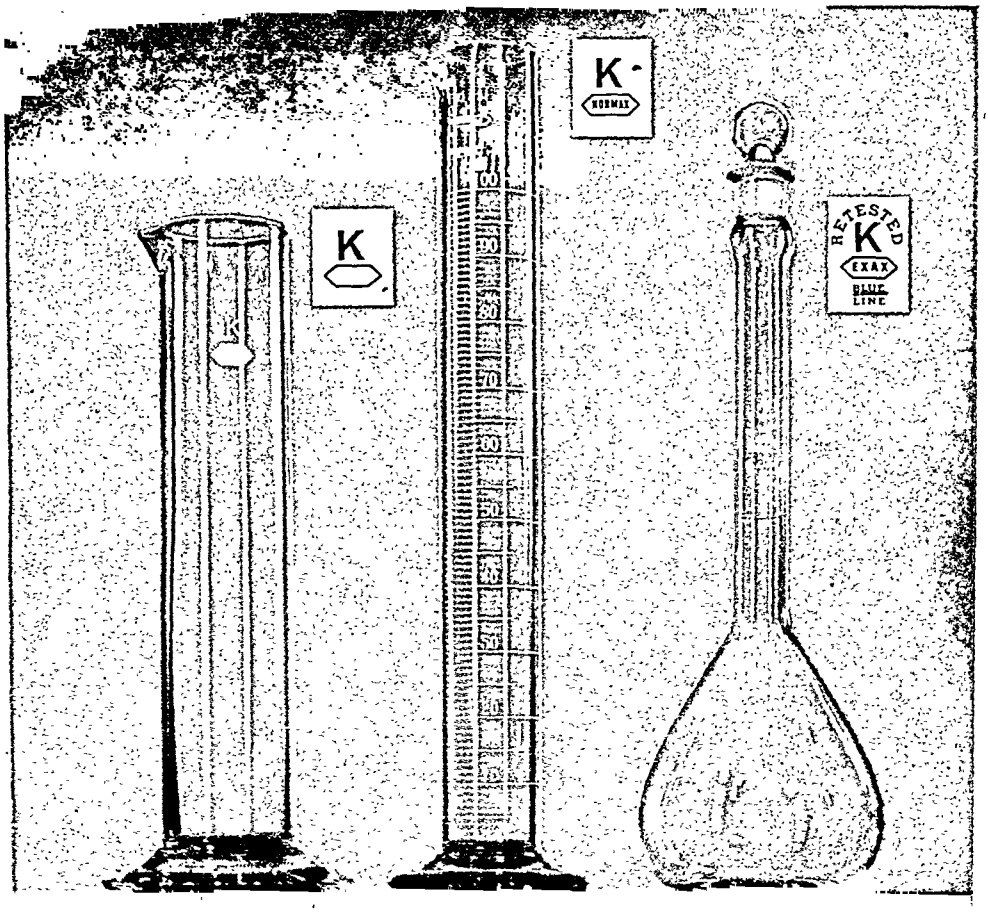
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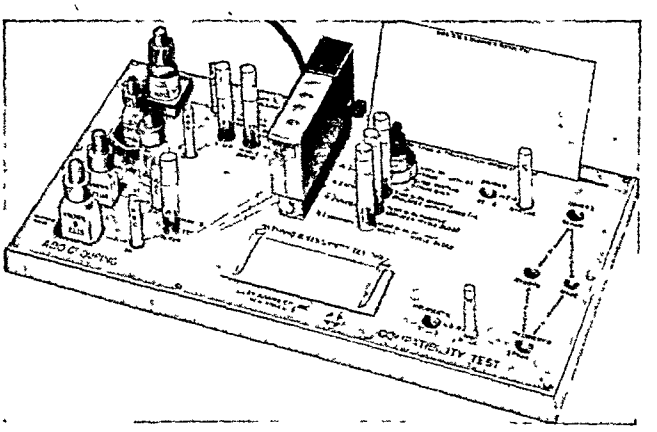
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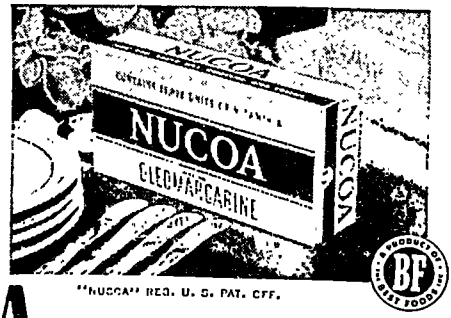
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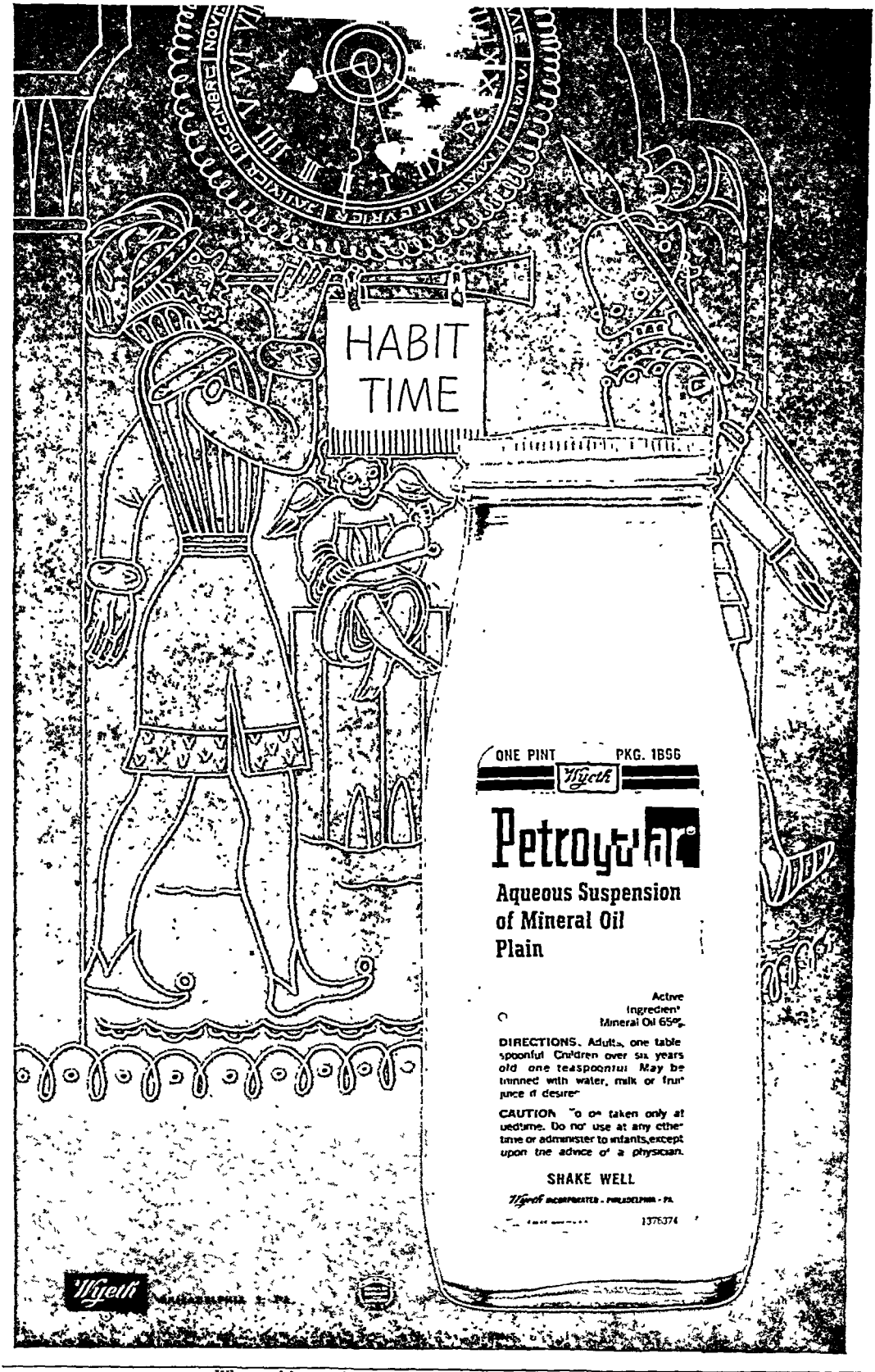


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DIRECTIONS. Adults, one tablespoonful Children over six years old one teaspoonful May be thinned with water, milk or fruit juice if desired
CAUTION To be taken only at bedtime. Do not use at any other time or administer to infants, except upon the advice of a physician.
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Section 1. Technique

Section 2. Diseases of the Skin and Mucous Membrane

Section 3. Infective Fevers of Virus Origin

Section 4. Some Arthropod-Spread and Other Tropical Infections

Section 5. The Common Cold and Influenza

Section 6. Virus Infections of the Eye

Section 7. The Pneumonitis-Psittacosis-Lymphogranuloma Group

Section 8. Rabies and Pseudorabies

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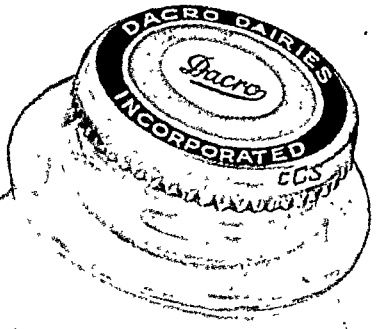
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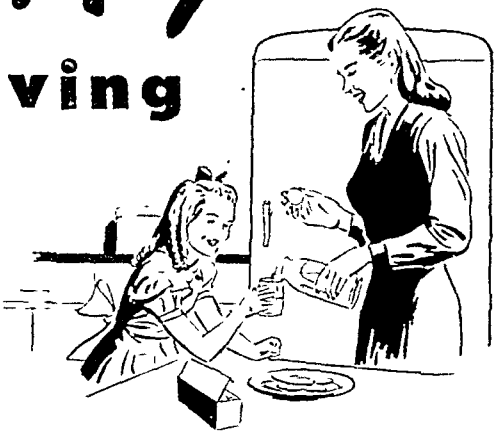
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1. Cannon, A. Benson, and McRae, Marvin E.: Treatment of Scabies, J.A.M.A. *138*:557 (Oct. 23) 1948.

2. Wooldridge, W. E.: The Gamma Isomer of Hexachlorocyclohexane in the Treatment of Scabies, J. Invest. Dermat. *10*:363 (May) 1948.

3. Niedelman, M.L.: Treatment of Common Skin Diseases in Infants and Children, J. Pediat. *32*:566 (May) 1948.

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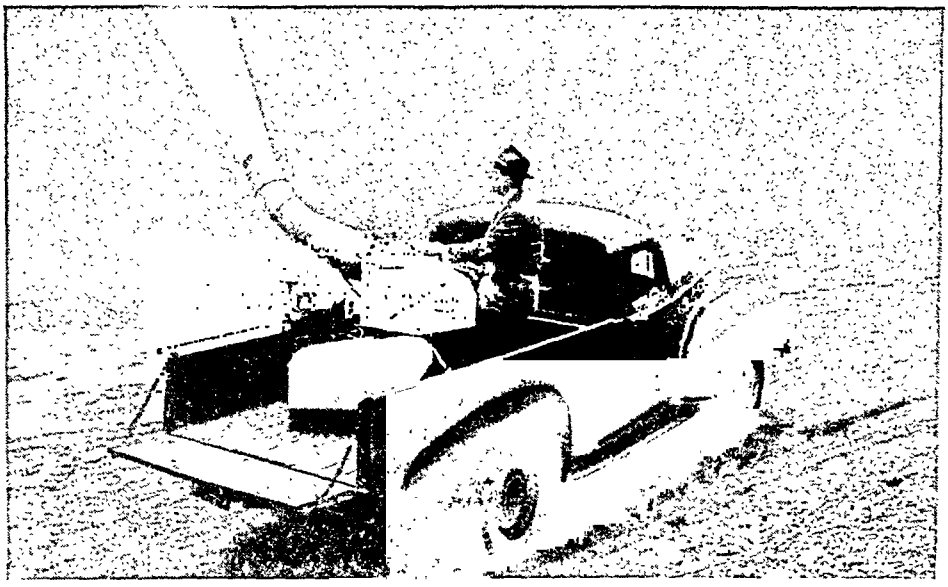
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Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60; Proc. Soc. Exp. Biol. and Med., 1934, 32-241; N. Y. State Journ. Med., Vol. 35, 6-1-25, No. 11, 590-592.

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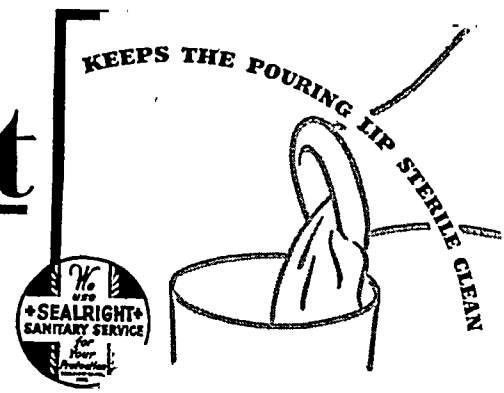
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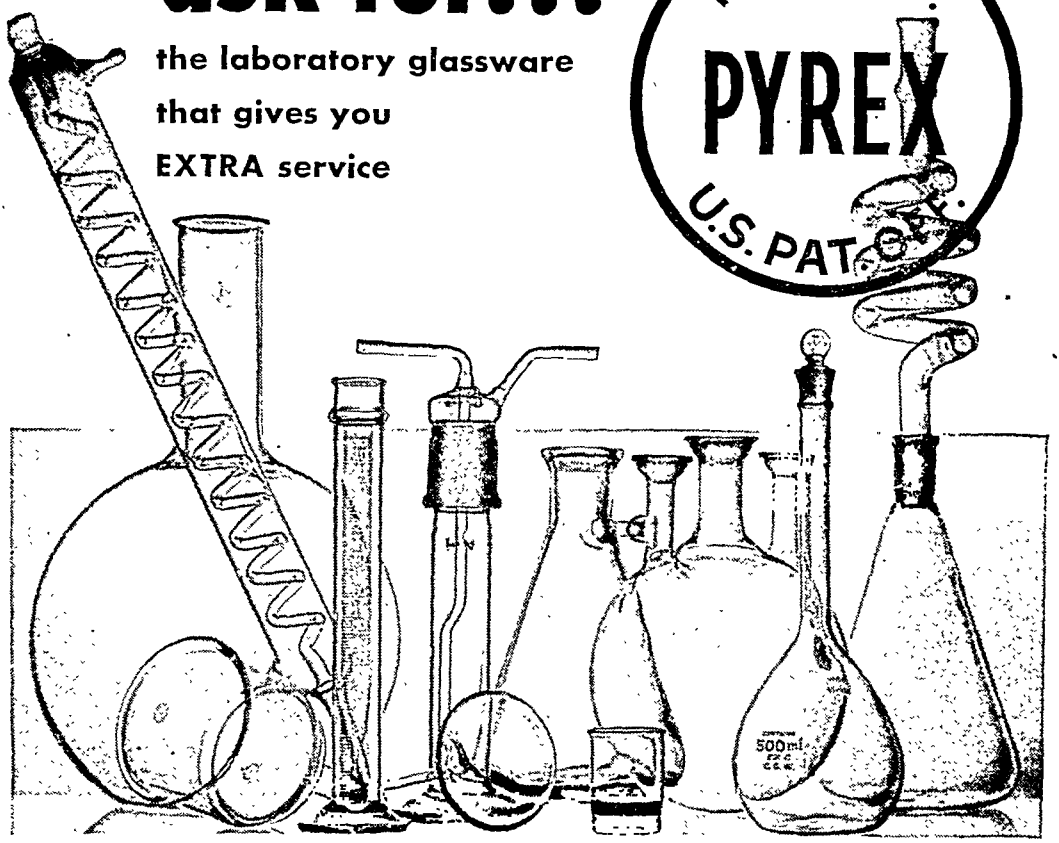
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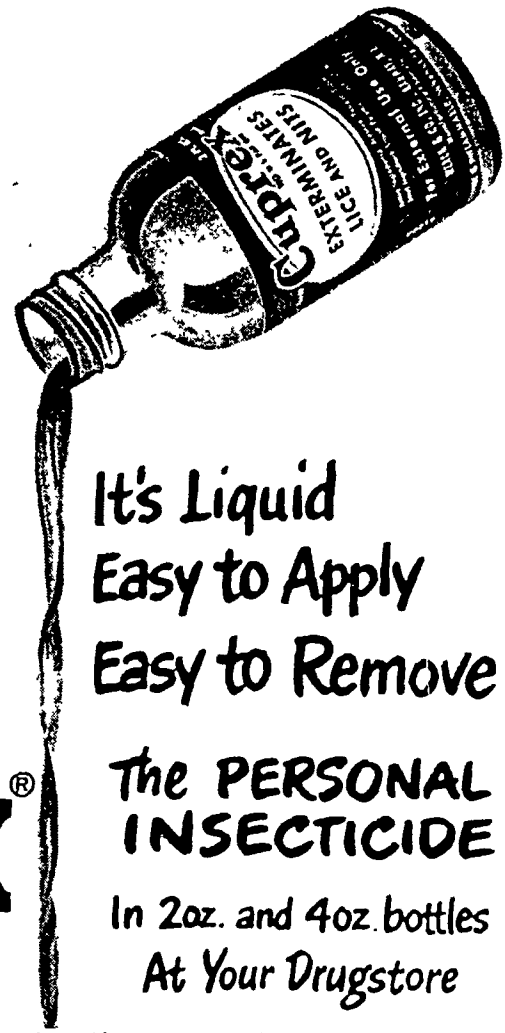
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The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

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Ready-to-eat or Hot Cereal, 1 oz.;	PROTEIN..... 20.7 Gm.	7.1 Gm.
Whole Milk, 4 fl. oz.;	CALCIUM.....0.465 Gm.	0.156 Gm.
Sugar, 1 teaspoon;	PHOSPHORUS.... 488 mg.	206 mg.
Toast (enriched, white), 2 slices;	IRON..... 3 mg.	1.6 mg.
Butter, 5 Gm. (about 1 teaspoon);	VITAMIN A..... 1074 I. U.	193 I. U.
Whole Milk, 8 fl. oz.	THIAMINE..... 0.52 mg.	0.17 mg.
	RIBOFLAVIN..... 0.87 mg.	0.24 mg.
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**Composite average of all breakfast cereals on dry weight basis.*

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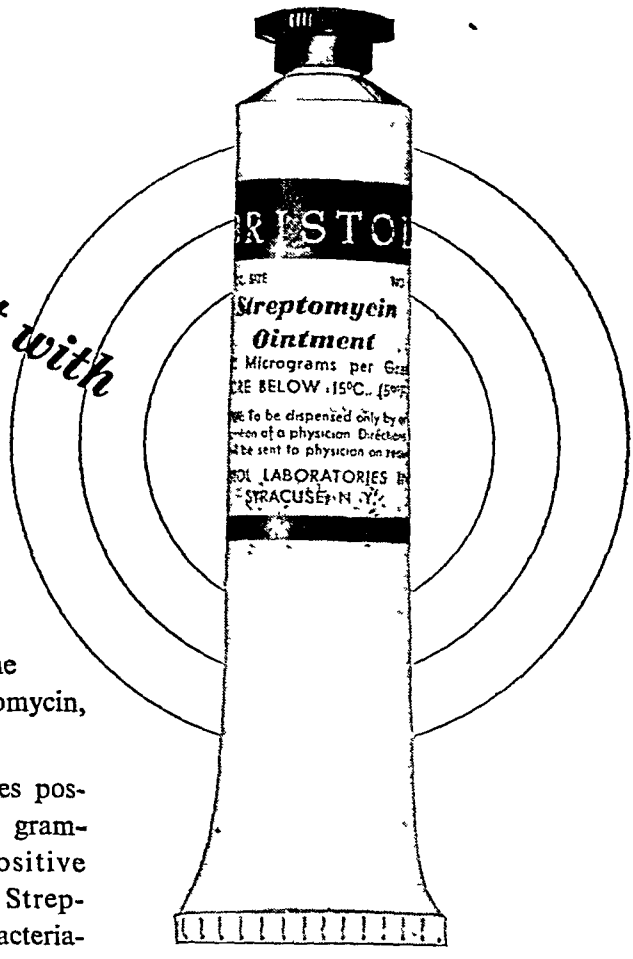
MORE DOCTORS SMOKE CAMELS

than any other cigarette



Doctors smoke for pleasure, too! And when

Hit the Whole Target with



When attacking skin and wound infections, more than half of which "will be found to be due to a mixture of organisms",[1] the effective agent is one which, like streptomycin, has a wide antibacterial effect.

BRISTOL STREPTOMYCIN OINTMENT makes possible potent local action against most gram-negative and many common gram-positive organisms (such as Staphylococci and Streptococci). Its bacteria-destructive and bacteria-inhibitory effect is broader than other topical antibiotics. It is, therefore, effective against more skin and surface wound infections.

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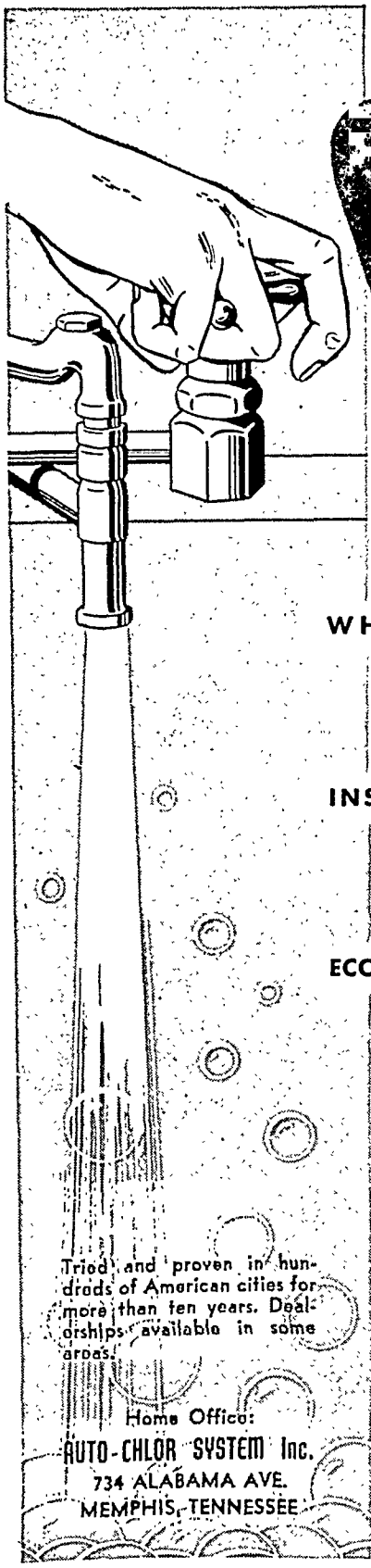
BRISTOL STREPTOMYCIN OINTMENT is indicated for the treatment of wound and skin infections due to organisms sensitive to streptomycin. Incorporated in a smooth water-soluble base, it is convenient and pleasant to use.

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Bristol
LABORATORIES INC
SYRACUSE, NEW YORK

(1) *F. L. Meleney. Surg., Gynec. & Obst. 86 760 (June), 1948*

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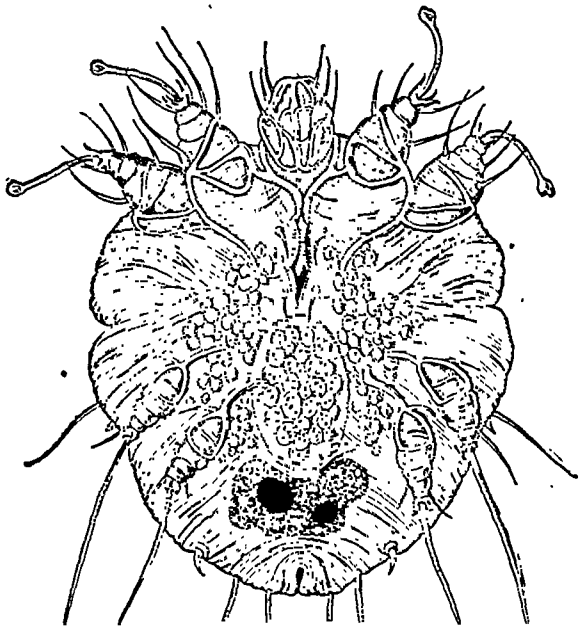
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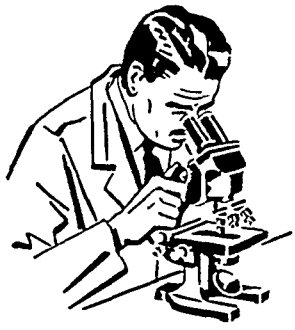
1. Mackenzie, I. F.: Brit. M. J. 2:403, 1941.

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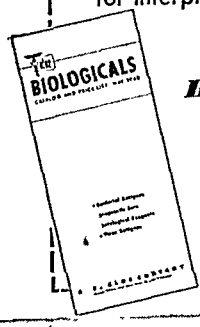


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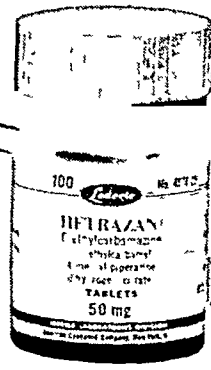
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Paratyphoid A
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Typhoid, H and O
Preserved Sheep Cells
Proteus OX19

Anti-Bacterial Sera

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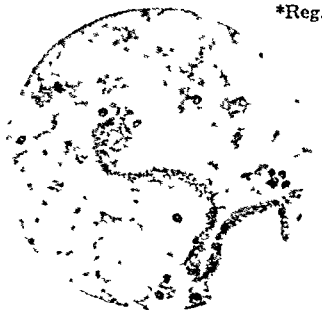
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PACKAGES: *Bottles of 100 and 1000 tablets*

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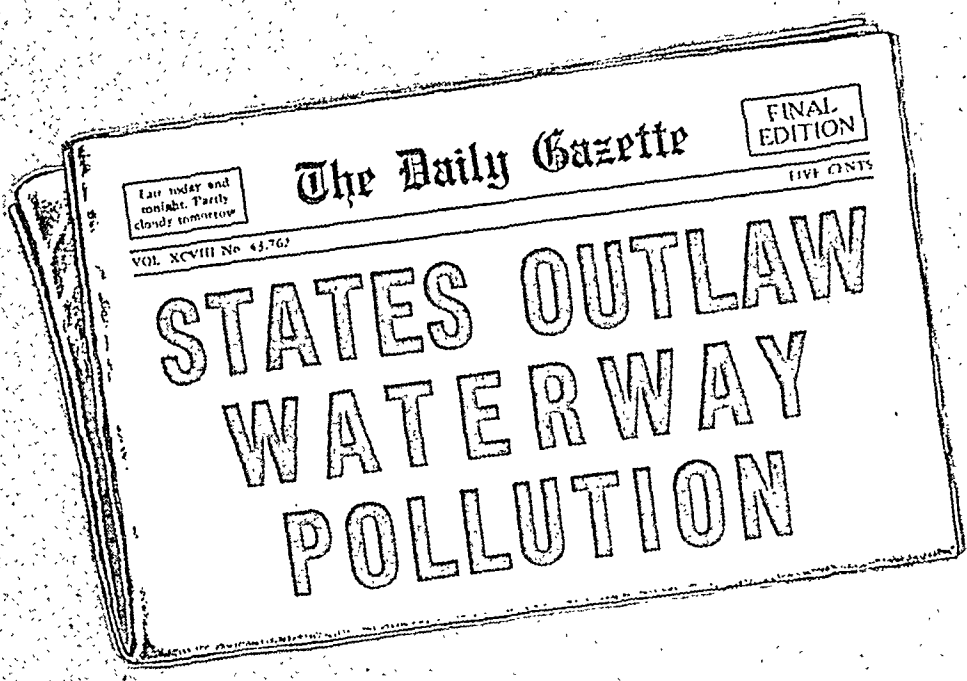
High power photomicrograph (X 210) of microfilaria of W. bancrofti *in human blood. The red blood cells have been dissolved, leaving only the microfilaria and the white blood cells.*

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AMERICAN Cyanamid COMPANY

30 ROCKEFELLER PLAZA NEW YORK 20, N. Y.

tomorrow's newspaper today

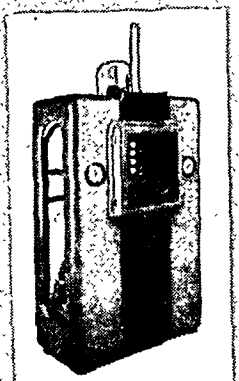


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S-35

American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 March, 1949 Number 3

Anniversary Program—150th Year U. S. Public Health Service

The Past and Future of the Public Health Service *

LEONARD A. SCHEELE, M.D., F.A.P.H.A.
Surgeon General, U. S. Public Health Service, Washington, D. C.

THIS morning, 17,000 men and women of the Public Health Service turn their thoughts to this platform. From 44 of the 48 states, from Alaska, the Canal Zone, Hawaii, Puerto Rico, and the Virgin Islands, from headquarters in Washington, and from 14 foreign countries, we salute the American Public Health Association. And we say: "Thank you for honoring us in this special program to commemorate the 150th anniversary of the Public Health Service."

All of us feel that the Health Officers Section has provided an unusually fitting climax to our sesquicentennial. No professional society, no voluntary agency, is so closely related to the Public Health Service as the American Public Health Association. The two organizations are indeed blood relations, for each has fed the life-stream of the other since 1872 when the Association was organized with an officer of the Marine Hospital Service among its ten founders. Eight Presidents of the Association have been Public Health Service officers at the time they held office. Several others have been Service officers at some time in their careers.

As this memorable year draws to a close, then, the Public Health Service feels a special pride in being able to come before the Association with our storied past and our renewed faith in the future.

Coincidence places this commemorative meeting in a perfect setting. Boston is both the cradle of the Public Health Service and the birthplace of the modern public health movement in the United States. Here, in 1799, the first U. S. Marine Hospital opened its doors to sick and injured seamen. Here, too, in 1845, and again in 1850, Lemuel Shattuck wrote his classic reports which became the blueprint for American health organization.

The origins, growth, and development of the Public Health Service are well known, in broad outline, to most of this audience. This is fortunate, because a little mental arithmetic tells me that the time at my disposal allows about 40

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

seconds for each decade of our 150 years, and a few minutes for a look at the limitless future. Such a superficial account would not be satisfying either to the speaker or the audience, so I shall proceed quickly to the future.

First, let us look at our organization as it is today. Our financial situation—I will say this with Yankee caution—is "tol'able." In 1948, appropriations to the Public Health Service, including contract authorizations for construction, totalled over $200 million, and for this fiscal year, 1949, over $275 million. We have three new programs which are not covered by the 1949 budget: the National Heart Institute, the Dental Research Institute, and the program for water pollution control. We await the meeting of the new Congress for full activation of these programs. So I say our situation is "tol'able." Our 1948 and 1949 budgets, however, represent increases upward of 2,000 per cent over appropriations available 15 years ago.

In 1917, the Public Health Service had only 187 commissioned officers, all physicians, and less than 2,000 other employees. In 1940, the combined force included about 8,500 persons. Today, the total, full-time staff of the Service numbers 17,000, of whom 2,000 are officers in the regular and active reserve corps, now including physicians, dentists, engineers, sanitarians, pharmacists, nurses, and dieticians.

The programs of the Service are in three major categories: research, clinical medicine, and public health administration. Three major administrative units complement those categories: the National Institutes of Health, the Bureau of Medical Services, and the Bureau of State Services. The Office of the Surgeon General is presently a fourth bureau, composed of a few unrelated divisions and of the internal management services, such as budget and fiscal, personnel administration, and supply procurement.

Here is a point at which we can take a look at the future. One of my first concerns as Surgeon General is to improve the efficiency of the Public Health Service. The expanding magnitude of our responsibilities demands it.

Six months ago, I appointed a Committee on Organization, composed of members of my staff,* to make a comprehensive study of the organizational structure and working relationships of the Public Health Service, at headquarters and in the field. The committee, under the chairmanship of Deputy Surgeon General W. Palmer Dearing, has worked throughout the summer with the help of many other members of the Service in the various bureaus. They have come up with a series of initial reports which I regard as statesmanlike—reports dealing with general principles of organization and with the committee's first area of inquiry—federal-state activities.

COÖRDINATION OF SERVICES

It is too early to report here the outcome of the committee's specific recommendations. But I can tell you that already the Public Health Service is moving *away* from a categorical approach in all of its activities, and *toward* a more generalized and unified approach.

That trend will be accelerated in the immediate future, and its scope will be broadened. In research, clinical practice, and public health administration, we cannot—and do not—deny the vital importance of specialization. But we do—and we must—abhor the isolation of special knowledge, skills, and services in water-tight compartments.

The end result of isolation can only

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* Public Health Service Committee on Organization: W. Palmer Dearing, Deputy Surgeon General, Chairman; Harry G. Hanson, Executive Officer, Secretary; J. W. Mountin, Assistant Surgeon General, Bureau of State Services; Mark D. Hollis, Assistant Surgeon General, Sanitary Engineering; R. W. Bunch, Administrative Officer, Bureau of Medical Services; A. F. Siepert, Executive Officer, National Institutes of Health.

be stultifying, whether it occurs horizontally across the three major types of activity, or vertically through the scientific disciplines, the medical specialties, or the categorical health programs. The scope and depth of human knowledge; the infinite variety of special technics are such that no one mind, nor group of minds, can encompass them.

But recognition of this fundamental truth is not enough. It is easy to philosophize and say that all the disciplines and services related to the health of mankind are interdependent. Somewhere, sometime, a start must be made toward an interdisciplinary, integrated approach in all agencies responsible to society for the study and health care of the people.

The Public Health Service, then, is putting its house in order so that we may use fully and more effectively the increased resources provided by Congress for the health of the people. Needless to say, we shall act within the framework defined by the Congress; but we shall seek legislation to authorize any basic changes which we believe to be necessary for efficient administration.

This does not mean a lessened interest in the pioneer work that must be done against the major health problems of our times. Quite the reverse; our plans are to strengthen and sharpen the attack already begun against such massive problems as heart disease, cancer, and mental disease. Other specific problems of the times also await attention. Our interest is in perfecting the Public Health Service administrative machinery through which the objectives of all our programs are reached.

Simply, what we are aiming toward, is to make of our large, sprawling organization a hard-driving, united team. The Public Health Service has grown, programs and separate units have multiplied so rapidly in the past 10 years that there has not been time to prevent a somewhat unbalanced development.

We believe that the collaborating team is the best instrument for the pursuit of knowledge and the provision of health services. Because this is our belief and because we hope to see it adopted throughout the whole structure of research, clinical practice, and public health administration in the United States, we must, perforce, heed those simple words of advice: "Physician, heal thyself." This we propose to do.

LOCAL HEALTH SERVICES

There is one motivating force behind the plans and hopes of the Public Health Service which transcends all special interests. It is a dream that dawned in the minds and hearts of public health workers about 40 years ago. That dream: a local health unit for every community in the United States.

There are men in this audience (some of them members of the Public Health Service) who have fought for that dream all those years, or throughout their professional lifetime. Many men have died without seeing this, their dream, come true. The vision and faith of these men have fertilized the entire field of organized health work for nearly two generations.

"Public health is indivisible," they have said. When the Social Security Act was passed in 1935, providing specifically for the development of local health services—but not for particular disease categories—those men thought the battle was at least half won. The Public Health Service, with its colleagues from the states and territories, supported these principles: Grants-in-aid should be general; the budget structure should be simple; there should be reasonable latitude for administrative discretion in the use of funds appropriated for public health work.

Since that time, the proponents of a generalized health program and full-time local health service have been

somewhat like the salmon—swimming upstream against the strong current of categorical appropriations and programs. They have kept on swimming. The goal is nearer, but it is still far off. That is to say, less than 5 per cent of the American people have fully staffed, well qualified, well supported health services. Although the goal is far from accomplishment, it must not remain far off in time.

Within the next year, an effective plan for insuring complete coverage with local health units must be put into operation. I am convinced that unless definite action is taken by state and local governments to increase organized health services to the people, we shall not be able to advance against the major causes of death and disability in the United States.

Public health work, indeed, seems to have arrived at the still center of human need. If it does not now adapt to contemporary needs, the hurricane of needless death and disease will sweep off in new directions, unchecked by the preventive methods which dynamic, coordinated health services could apply.

We already have evidence that the categorical programs themselves are still far from attaining their objectives, despite the money and effort devoted to them. The reason seems clear. In too many parts of the country, there is no qualified organization to bring the new, special services continuously and effectively, to the people. Even where all the health programs are unified administratively in the local health department, budgetary complications and conflicting lines of authority frequently hamper economical use of funds. These restrictions are even more seriously reflected in the quality of the service rendered to the public.

Additional legislation will be required to insure adequate federal support for local health units. There is a ceiling on Public Health Service appropriations for general grants-in-aid to the states. There are no cealings on such specialized programs as tuberculosis, venereal disease, and cancer control. But it may be that Congress, in the future, will take as a criterion for both general and special grants, the extent to which the states have organized and supported local health units in their jurisdiction.

The Congress and the federal agencies may well say to the states and communities: "It is your move." State aid to local jurisdictions falls far short of the needs. Many communities, on the other hand, do not take advantage of state laws and state aid already at their disposal. State aid to communities should be on the same basis on which federal aid is given to the states —that is, high quality consultative and technical assistance, liberal grants with wide administrative latitude for the local jurisdiction, and requirements for local participation, however small.

The Public Health Service will continue to demonstrate and stimulate expanded health services. We will request that the ceiling on grants for general health programs be removed. And we will support legislation for local health units if it is introduced in the next Congress, and if such action is in accord with the President's policy. In this entire effort, we have the full support of the Federal Security Administrator and our colleagues in the agency.

Last spring, I appeared before a Congressional committee in support of a bill for aid to local health units. Among the few civic organizations supporting the bill, the National Congress of Parents and Teachers bore the brunt of the battle. The State and Territorial Health Officers Association, the American Public Health Association, and the American Medical Association strongly endorsed the bill. Unfortunately, it could not compete successfully with other legislation. We can only

hope that the American people will demand passage of such a bill if one is introduced again, as surely it must be.

There is, indeed, no lack of moral support for full development of local health services. The organizations I have mentioned have been joined by other strong civic groups, such as the Farm Federation and the General Federation of Women's Clubs. More recently, some of the voluntary health agencies have begun to see the importance of the local health unit to their own programs.

Federal legislation, however, is not the only requirement for nation-wide local health services. State and local governments must take more responsibility. They must support the recommendations of their central health agencies for well planned, state-wide development of local units. State and local action, in fact, must be the spark plug for increased federal support.

All organizations must work with the public at state and local levels to get the comprehensive health services the people need. The federal government can only bear its share of the responsibility for leadership and help. The needs arise in the communities and the states. So must action arise in the communities and the states.

I suspect that the health officials, the professional and civic leaders, need to recapture some of the missionary spirit which 40 years ago inspired the pioneers. We, in the Public Health Service, have inherited that spirit from such rugged pioneers as Lumsden, Frost, Carter, and others. Many of us were trained by those men. We are still somewhat baffled to find that it is harder to "sell" legislative bodies on the idea of the local health unit than on attacking a particular disease. Some say that the local health unit lacks drama. No man who walked down the country roads with Lumsden 30 years ago would agree.

When Lumsden began his rural health campaign in 1914, our self-confessed "*Shoe-leather Epidemiologist*" sent his boys from house to house preaching the gospel of the sanitary privy. But his aim was what is now the Number 1 goal of public health: the modern, model, all-purpose local health unit. A unit adequately staffed with well trained physicians, public health nurses, health educators, sanitarians, technicians, and other needed specialists. A unit housed in a functional, good-looking building—the health center. A service, conveniently available to all citizens; working jointly (even under the same roof) with the local hospital and private physicians.

Lumsden's methods were as direct as his plan was far-reaching. You went into a county where the death rates were high and the flies thick. You went from house to house and explained to the families that typhoid, hookworm, and the "summer complaint" which killed their babies, came from their dilapidated backhouses. You showed them how and why a nice, fly-proof, sanitary privy would help protect their health. You persuaded them to rebuild. (Later, you went back—or Lumsden would want to know why you had not—to see whether they had done anything about it.) You gave lectures on sanitation—in churches and one-room school houses. You rounded up prominent citizens, and gave them an extra earful.

By the time you had finished this softening-up process, they were glad to invite you to survey their community and tell them what to do. Probably you already knew what should be done. But you made that survey with the same attention to detail, the same curiosity (for you might run across something unusual anytime), the same zest that filled you the day you decided to go into the Public Health Service.

The purpose? "The ultimate purpose," Lumsden wrote in 1916, "is to awaken in rural communities an indi-

vidual and communal interest in public health questions, which in turn will lead to an improvement in sanitary conditions and *the maintenance of an official local health agency.*" To this day, Lumsden's boys fondly recall that this purpose is what puts "the foolish glimmer in your eyes."

The Public Health Service could give little help for attaining that vision until 1936. For a few years after World War I, the Public Health Service had as much as *half a million dollars* to help interested states in developing local health work. But by 1928, the recession of public health work was on its way to the bottom. The Service that year had only $350,000 to spread among 204 counties in 17 states.

In that year, one of my distinguished predecessors, Dr. Hugh S. Cumming, revealed in a single sentence, the discouragement of health agencies throughout the country. "At the present rate of progress," the Surgeon General wrote, "about *fifty-one* years will be required before all the rural communities in the United States will be receiving adequate health service, the lack of which is responsible for an annual economic loss of one billion dollars."

Twenty of those 51 years are gone. This year, the Public Health Service dedicates itself to cutting that predicted time lag by at least 25 years. We must attain complete coverage of the country in the next 5 years. It would be ironical indeed if the richest nation in the world should take longer than a generation to complete a task so well begun, and so vital to the well-being of its people.

COMPREHENSIVE, MAXIMUM SERVICES

The public health agencies and professions need to take a broader view of the services required in our communities. What would have been the outcome if, say 10 or 20 years ago, the official health agencies and professional societies had broadened their concept of a local health unit's functions? That question perhaps can never be answered. But it may not be far from an accurate surmise that the current imbalance in many public health programs is a direct result of the "minimum service" point of view.

The need for the so-called "basic services" cannot be denied. But they are not enough, and they have never been enough. As nature abhors a vacuum, the voluntary agencies rose naturally. They rose from the American people and the American drive to get things done, to fill vacuums left by traditional and inadequate public health programs.

May there always be voluntary agencies to spearhead needed action! May there never come a time when only official agencies are active for the people's health! No thoughtful health officer can overlook the significance of these popular movements, devoted to the cause of particular population groups or to the conquest of a particular disease. In each instance, the public health programs had failed to give that problem the attention it deserved. Voluntary effort must always be welcomed and fostered in our country.

In this Atomic Age, full preservation of our man power is vital to the very existence of democracy in the world. Neither state, local, or federal governments, nor voluntary agencies, nor professional organizations, nor the people themselves, can afford to shirk their full responsibility to work together for higher levels of health.

I spoke earlier of the present interest of the Public Health Service in simplifying the administration of grants-in-aid to the states. It must be clearly understood that our ability to do so will depend on evidence in the state plans that the states accept their responsibility to carry forward the attack on inadequate health services of all types.

We expect the special programs, stimulated by federal support, to be pressed with greater vigor.

Moreover, there are many fields, clearly within the province of public health work, in which the states should pioneer without the stimulus of "categorical" appropriations by Congress. Housing, for example, holds first rank in social problems of today. Despite the distinguished studies made by the American Public Health Association under Dr. Winslow's direction, healthful housing has had almost no attention by official health agencies.

The relation of housing to the spread of communicable diseases is too well known to merit discussion here. The amazing point is that the problem is so well known, and that so little is done about it. The effects of poor housing on mental health can only be surmised; but we cannot ignore, as indices, the rising rates of juvenile delinquency, divorce, and violent death in familial situations. Home accidents, too, rank high as a cause of death and disability. Public health agencies, it seems to me, can no longer ignore the problem of housing.

The Public Health Service began a few weeks ago to assume its responsibility in this field. Our engineers are working with the various federal agencies concerned with housing to define the areas of health interest in the total problem. We expect them to come up with recommendations for public health action. The state health agencies also should give more attention to the housing problem in their jurisdiction. The United States can no longer afford to tolerate, for example, the woeful conditions in many of the "fringe areas" beyond the corporate limits of our populous cities, often beyond the protection of municipal sanitary and construction codes.

I mention housing as an example of problems which exist or may arise, and which should be given attention in current public health programs. There are, of course, many other important services, partially developed or neglected. My purpose is to stretch the minds of public health workers to a realization that theirs is a dynamic job; that they never can be satisfied with what *has* been done, or even with what *is* being done. Our satisfaction can be only in keeping a perpetual vigil over the needs of the people we serve, alert to new problems and new methods.

The local health unit is an ideal instrument only so long as it is flexible; ready to take the leadership in introducing new programs; ready to follow the lead of the community it serves, demonstrating the peculiar genius of the American people to accomplish their social aims by the coöperation of governmental and voluntary agencies.

TRAINING OF PUBLIC HEALTH PERSONNEL

The ideal local health unit will remain a dream so long as the men and women who serve in it lack the training they need. Estimates made by the National Health Assembly last May show that training is needed for at least 60,000 persons in order to provide minimum staffs for nation-wide health units.

The concept of formal training for public health work took shape only 30 years ago, when the first graduate school of public health was established. Others followed rapidly, but even today there are only 9 accredited schools of public health in the United States. A new one, as most of you know, is being developed in the University of Pittsburgh by former Surgeon General Thomas Parran.

During the past 3 years, the Public Health Service has developed a comprehensive program for inservice training of its own professional personnel in research, clinical, and public health

branches. Likewise, we have been able to help the professional schools to expand their research and training programs in the special fields of cancer and psychiatry. Under the new programs for dental research and heart research, we shall be able to give similar assistance in these special fields. As yet, however, we have been unable to give general assistance to the professional schools.

The Public Health Service proposes to expand its training program for its own employees to the limits of its legal authority. Our task would be made easier if the young doctors, dentists, and nurses who come to us from their basic training had been better indoctrinated in the principles and practice of preventive medicine during their undergraduate days.

As the field of public health widens, the variety of special knowledge and skills increases. On-the-job training and inservice training are needed in every area, in order to keep staffs up-to-date. Too few state health agencies have developed the type of training program which will improve their chances for recruiting competent workers and increase the efficiency of existent staffs. The state health departments which have developed comprehensive training programs are benefiting to an extent far in excess of the expense and effort involved.

The total problem of professional education requires both study and action. A series of Acts of Congress, beginning in 1945, has given the Public Health Service an increasingly heavy responsibility and broad authority to augment medical research generally, and training in special fields. Our advisory councils, who must study and recommend the approval of grants to outside institutions, have felt the need of objective data as a basis for their policies and actions in this field.

About two weeks ago, the National Advisory Health Council recommended that the Public Health Service undertake a thorough study of its research and educational grants and fellowships programs, including the costs of medical education. "One of the chief purposes of this study," the Council reported, "is to determine whether present Public Health Service programs or other methods may be recommended for the improvement and extension of medical education."

By assembling data on the costs of teaching facilities in relation to the total costs of medical education, the Council hopes to be able to evaluate the effect of the grants programs on medical school finance and on medical education. The Council further recommended that a special committee be appointed to develop the study. We are hopeful that the study will provide a basis for similar analysis of other branches of professional education in which the Public Health Service has a specific interest.

The broad functions of the Public Health Service, obviously, give us an interest both in basic training of the major professional groups, and also in their graduate work. At times in the past, I believe that our colleagues, and even some of our own officers, have forgotten that when, in 1912, the 62nd Congress gave us our definitive title, the Public Health Service, it did not exclude—but specifically included—our medical care programs. There has never been a time in our 150 years of existence when the Service was not the major federal agency for civilian health. This was true when the Service was a handful of locally operated hospitals for sick and disabled seamen, as it is true today. The difference in functions is one of perspective, not of haphazard addition of responsibilities.

Our first hospitals are among the oldest general hospitals in the United States. The Boston Marine Hospital, for example, is the fourth oldest in the

country, preceded only by the Pennsylvania Hospital in Philadelphia, the New York Hospital (now Bellevue), and Charity Hospital in New Orleans.

Very early in its existence, the Marine Hospital Service had a close relationship with medical faculties and the training of physicians. As early as 1804, the Boston Marine Hospital became the first teaching hospital of Harvard Medical College, through the efforts of one of the giants of American medicine—Benjamin Waterhouse. Dr. Waterhouse was on the original faculty of the medical school, and served as physician-in-charge of the Marine Hospital for 4 years. He was among the first medical educators to realize the inadequacy of the didactic instruction and apprenticeship of those days. The Boston Marine Hospital was the scene of his experiments in applying new European methods of hospital administration and professional training. Waterhouse is also remembered as the physician who introduced vaccination in the United States.

I have dwelt upon some of these early activities because we sometimes overlook the close relation of the beginnings of preventive medicine and hospital care to public health. It is common to set the origin of the public health movement in the great sanitary reforms of the latter half of the 19th century. The importance of sanitation, and its place in the foundation of the public health structure, cannot be—and is not—disputed. In the light of modern knowledge and modern concepts, however, we are coming to see that "public health" is not and never has been a thing-in-itself, but a part of a larger whole: man's social effort for the conquest of disease and the attainment of health.

Such a concept includes the achievements of clinical medicine, the professional schools, the private hospitals, as well as the achievements of public agencies in the field of medical care. It includes the whole history of medical research in this country, a field in which state health agencies should be much more active. And, of course, the total concept of public health includes all those collective efforts by official and nonofficial agencies to apply preventive measures for the protection of all the people.

By some insight, conscious or dimly sensed, the people of the United States through their Congresses have maintained in the Public Health Service that unity of functions—research, clinical medicine, and public health administration—which constitutes the public health movement of today. There may have been times in our history when the Service has not been conspicuous for the excellence of its performance in all of these fields; but I think it is right to say, those times have been few.

Since 1939, the Public Health Service has been a constituent unit of the Federal Security Agency. That shift placed the Service where it could best grow and develop to fulfil its destiny; that is, it placed the major health agency in close administrative relation with the educational and public welfare programs of the government. The health policy of the United States Government, as represented by Congressional Acts and the work of the Public Health Service, the Children's Bureau, and related programs, has never been partisan, nor even bipartisan. It is non-partisan. We of the Public Health Service and our federal colleagues are going to do all in our power to keep it that way.

The Public Health Service is a public servant. Each member of our team is proud to name our calling. We take this role to mean that we do the chores assigned to us by the people of the United States. But it is no "hired man's" job. To us, it is a task calling for an incredible variety of skills, abilities, and knowledge; a task calling for

creative thinking of a high order. It calls also for leadership, rather than routine obedience. Unless we can bring these qualifications to the job of public servant, we cannot discharge its responsibility with the moral and intellectual integrity it demands. The job also offers limitless possibilities for satisfying work with colleagues in scores of professions, hundreds of institutions and health agencies. Collaboration in man's great quest for health is, to our way of thinking, the highest human indeavor.

We expect to go on serving in that capacity with the same good, self-imposed discipline and integrity which our professions and our predecessors in the Service have taught us. The Public Health Service has one sole interest: *to do* and *to be* only what is best for the health of the people. As in the past, we await their orders.

Canada Acknowledges A.P.H.A. Resolution on National Health Program

The following letter has been received from Paul Martin, Minister of National Health and Welfare of Canada in reference to Resolution 21 adopted by the Association and published in January *Journal.*

"I wish to express to you and to the members of the Governing Council of the American Public Health Association my thanks for the very encouraging resolution relating to our new National Health Programme which was adopted at the recent annual meeting in Boston.

"We are convinced, of course, that the programme is of great significance and promises possibilities for tremendous developments in the health field of this country. I believe we have an opportunity to do really helpful things for our people. Naturally that is my first concern. However in addition and possibly in the long run just as fruitful, there is a wonderful opportunity for new thinking, new projects, and significant developments in health work. Such possibilities naturally are most intriguing and challenging.

"It is in this latter connection that I wish to tell you how much we in this country value the very fine relationships which our health officers enjoy with those of the United States. This is true not only of individual workers, but, also of great voluntary organizations such as your Association and of government officials at all levels. The hospitable way in which we are always received in the United States and the generosity with which advice and information are always tendered is a matter of great pride and satisfaction to us. I know quite well that this spirit of coöperation and this helpful collaboration will contribute much to the maximum development of our new programme.

"Again may I express our gratitude for the resolution. I hope you will find it possible to convey this message to the members of the Council."

Anniversary Program—150th Year, U. S. Public Health Service

Training of Health Man Power *

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Vice-President, Johns Hopkins University, Baltimore, Md.

IT is a privilege to speak at this meeting which is devoted to commemorating the one hundred and fiftieth anniversary of the U. S. Public Health Service. All of us who have been working actively with the Service during the period of its greatest growth and are now sharing in its efforts to make public health mean the health of the public, take great pleasure in its past developments and in the prospects ahead. This rapid growth has brought to the fore the fact that our present programs and those that we envision for the future cannot be successful unless we make more adequate provisions for developing the necessary personnel. It is therefore appropriate that someone should discuss the topic assigned to me today.

As in the case of all large-scale social movements, our problem is that of providing the staff of workers needed for the task, and this involves not merely the setting up of the mechanisms for appropriate training but also the more difficult one of recruiting the individuals to be trained. I shall, therefore, discuss both phases of this question and suggest certain possible solutions.

As an approach to the subject, we might review briefly past approaches to the problems of recruitment and training and the present status of such efforts.

During the early stages of the public health movement, programs were left to some public-spirited individual, usually a doctor who, on the basis of such training as he had had, served as health officer. The subordinate personnel, if there were any, had no specific training. Among the early approaches to education directed expressly at public health, stands the London School of Tropical Medicine, by means of which England undertook the training of medical officers for the colonies. Although these men were called medical officers, their activities were primarily in public health, and in this effort we see a deliberate attempt at health officer training. A more unique approach to the matter was the early school at the Massachusetts Institute of Technology where, under the stimulus of Sedgwick and Whipple, the disciplines of biology and engineering were united in an approach to health matters. The emphasis here was on the sanitary aspects of public health work, that being the most important problem of that time. A number of the people now active in public health work are products of that school and of that stimulus.

As the scope of public health increased, the need for giving more specific public health training to physicians became apparent. The result was the setting up of training centers in public health, either as independent schools or as departments within medical schools. In either case, efforts were mainly devoted to the developing of appropriate

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training for health officers under the concept that had been growing within this country that health officers should be graduates of medicine. These schools, however, did not limit themselves to the training of health officers but immediately started to develop training opportunities for the variety of specialists other than doctors of medicine. As a result, we now have graduate training opportunities for such classes of public health specialists as bacteriologists, parasitologists, epidemiologists, statisticians, sanitary engineers, industrial hygienists, nutritionists, public health educators, specialists in the public health aspects of tuberculosis, venereal diseases, maternal and infancy hygiene, and in many other fields.

The teaching centers offering these varieties of training have been organized into a system of approved schools of public health, which provides for a certain unification of the educational efforts without impeding the development of new courses of study. The addition of new schools, such as the one recently announced at the University of Pittsburgh, and the initiation of new interests in the schools already established, assures us, I believe, that we shall have reasonable coverage in so far as graduate and postgraduate training is concerned.

In this educational movement, however, there is an inherent weakness, in that we have set up a graduate pattern without making the necessary provision for the flow of personnel from the lower programs of education into this graduate field. Looking back, it is easy to see that the mistake was a natural one, for so much of the thought thirty years ago was concerned with the question of training medical men to be health officers that the educational flow was assumed to be that of a premedical course, training in medicine, and then graduate work in public health. The problem of new recruitment was supposed to be that of stimulating medical men to take this training and to encourage this result; courses in preventive medicine were introduced in the medical schools. This approach to the problem overlooked the need for revealing to young men and women interested in fields other than medicine the opportunities that existed for them in the area of public health. Movements in this direction were made through the establishment of courses in public health at the college level. Unfortunately, however, in the period of intense interest in developing graduate schools, there was a tendency—conscious or unconscious—to frown on these efforts at the undergraduate level, and progress along these lines has not been what it should have been during the past generation.

In a talk given to a similar audience a year ago, I called attention to the fact that the shortage of personnel apparent in so many of the activities of society is not, as a great many people assume, a product of the war, but is rather a result of the fact that the man power demands of our highly industrialized society and of our expanding social programs exceed the supply in our present population. Competition for the brains and abilities of young people will be more intense in the generation to come than it has ever been. There is no way for the field of public health to face this competition except through the development of an interest in public health on the part of our young people at college and at high school levels.

Looking at medical education, we see that here we were forced to establish, on a systematic basis, premedical courses for the man going into medicine. Without the establishment of such courses we would not have had, and would not now have, the flow of well qualified young people into the field of medicine that is needed to keep up our supply of physicians. It is my opinion that the creation along similar lines of a "pre-

publichealth" course offers one of the most important approaches to our problem of recruitment and training. It would be desirable for the agencies that do the broad planning for public health, that is, the American Public Health Association, the U. S. Public Health Service, the Association of State and Territorial Health Officers, and the schools of public health, to consider seriously an organized approach to undergraduate training in public health.

It is well known to all of you that certain universities do offer such training, but the movement has none of the stability and force that has been achieved in the graduate program. We almost seem to be building an army of generals in public health without the necessary soldiers.

I cannot leave this subject without presenting some of my concepts with regard to this undergraduate course. I believe that it should be, in so far as possible, a unified course for the wide variety of people going into the field of public health, and should not be framed in such a way as to encourage too early specialization. There are certain basic disciplines at the collegiate level that all persons should cover if they expect to carve out a real career along the lines of any one of the numerous activities embraced under the title "public health."

In general, the four years of collegiate training should include specific courses in the natural sciences including mathematics, in the social sciences, in psychology, and in those general cultural subjects that all college students are encouraged to include in their curriculum.

The case for the natural sciences is clear. The public health movement is so firmly based on scientific findings that no young person should be encouraged to enter the field of public health without a fairly substantial training in the sciences at the collegiate level.

Neither is there any argument with regard to the social sciences; public health being a social activity, students should take specific courses in this field. I should include within this group, not merely the usual courses that one thinks of under the heading of social science, but I should like to see developed a course in what might be called "social economics"; also a course in geography which would embrace training with regard to human populations and the relationship of these populations to their environments and their natural resources, since knowledge of these factors is basic to public health work.

A course in psychology is desirable because so much of the work in public health has to do with the question of human relations, and a general course in this field can furnish an excellent basis for an understanding of some of these forces.

The remainder of the 4 year course would be, as previously stated, filled in with general cultural subjects.

If properly developed, graduates from such a course would not be debarred from entering the field of medicine, even though they had not taken a premedical course. This would be a desirable thing because our present training program in medicine demands a rather early decision on the part of our young people as to whether or not they wish to enter medicine. We thereby tend to lose certain excellent individuals from medicine that we might have available if their training in the type of course described were such as to enable them to make the decision to go into medicine at some time toward the end of their collegiate career.

Graduates of such a "pre-publichealth" course would be suitable material for the numerous public health positions at the technical level below that of heads of departments and divisions. But more important than that, this course would provide a steady flow of young

people stimulated to thinking about public health and to developing careers in this field, and from this group we might expect to get the wider variety and the increasing number of graduate students that the future of public health demands.

Another opportunity for training in the field of public health which offers a good deal of promise, is that of inservice training. Various approaches to this problem have been made and in the past a great deal of pressure has been put on the schools of public health to develop such training as an active part of their own program. I should like to say that I believe this to be a mistake. Sound inservice training programs can best be provided by the operating agencies in public health. The schools should be expected to supply lecturers for such programs, and to coöperate with the plan in other ways, but I believe that it should not be left to the schools to take the initiative here. I should like to see all of the larger health departments add a person to their staffs whose function would be that of education. Their return for the support of such an individual would be the improvement of their personnel within all lines of departmental activities. Certain health departments have done this to some degree, and in every case that I know of, it has borne fruit.

One final area for training in the field of public health that should not be overlooked is that of education of the public itself. In the days when the public health movement was small, this was relatively unimportant, but now that we are engaged in a full-fledged social program, it becomes increasingly important that the public be constantly educated as to the meaning and the objectives of public health. In this, the public health educator is an important person. His functions, however, are not very clearly defined because the field of public health has no real program for education of the public. It would be wise therefore to leave the training of public health educators in a fluid state until more experiments in this type of education have been conducted.

With regard to our approach to the problem of training the public, it would be well to note the movement in relationship to the public school system that has resulted in the organization of Parent-Teachers Associations. We need similar public organizations in the field of public health. No one has yet proposed a plan under which these might be developed, and in many cases the health officer has had a tendency to discourage active interest in his problem on the part of community groups. The fact that the public will take an active interest in health problems is clearly indicated by a variety of minor specific instances; one that has attracted my attention recently was the eagerness with which people in different blocks in the City of Baltimore were willing to form teams in a program for cleaning up the rats of the city.

The fact that general interest in public health can be awakened around specific needs, such as poliomyelitis, heart disease, tuberculosis, cancer, etc., has led to the growth of powerful public organizations in these fields. These groups benefit from the fact that they are devoted to specific problems, but this fact is also a weakness in our development of a balanced health program. Perhaps the one general field that the population of this country has shown an interest in getting behind is that of "medical care." If we can maintain this concept on a broad basis, it might be made the keynote for an approach to the education of the public in health matters. At any rate, there is an opportunity for leadership in public health to furnish the people of the country with additional outlets for their energies and interests in health problems. When we have such an outlet on a comprehensive rather than a specific

basis, our program of education of the population in general with regard to public health will be a simple one and the field of action of the health educator will be clarified.

I have painted a rather sweeping picture of training in public health. I have done this deliberately because I feel that at a meeting such as this, where we are celebrating the anniversary of the organization that is set up to supply leadership, it would be well to take a broad point of view. I feel confident that the future will see developed many of the areas that I have discussed here and indeed many others that I have failed to mention, and in all these new movements the stimulus and leadership of the U. S. Public Health Service will play an important part.

Problems of Training of Professional Public Health Workers

A meeting, called by the Federal Security Administrator, which dealt with the necessity of training large numbers of professional public health workers, was held in Washington, D. C., on January 8, 1949. Participants at the meeting were members of the staff of the Federal Security Agency (inclusive of officers of the U. S. Public Health Service), deans and faculty members of schools of public health, and the Chairman of the Executive Board of the American Public Health Association

Questions discussed were:

1. How much would the average annual training load have to be increased if future public health needs are to be met, and what proportion of the total average training load should be carried in the graduate programs of accredited schools of public health?

2. How would an increase in enrollment in the schools of public health affect the financial plight of the schools and what consequences might result if financial assistance were not extended to schools of public health?

3. What formula for federal aid to schools of public health should be devised (a. black grant: b. capitation; c. construction)?

4. Since most public health workers prepare themselves for governmental positions not offering liberal remuneration, can recruitment for training be expected to be successful unless financial assistance is offered to the students?

5. What formula for direct aid to the students appears most appropriate (loans, scholarships, tuition, travel, stipend, grant)?

6. With changing horizons in public health, how should the present curricula of the schools be modified?

It was agreed that during the next 10 years, an annual average of nearly 7,600 professional public health workers in the following categories must be trained: physicians, nurses, engineers and other sanitation personnel, dentists, health educators, laboratory workers, hospital and medical care administrators, nutritionists, and statisticians. It was further agreed that 29 per cent of the total number of 7,591 should be trained in the graduate programs of schools of public health (accredited by the American Public Health Association). The participants also approved formulae for aid to the schools and for the amount of fellowships to the various professional groups of public health trainees.

Anniversary Program—150th Year, U. S. Public Health Service

A National Health Program—What the Public Expects, and How to Organize It *

AGNES MEYER
Washington Post, Washington, D. C.

NONE of our federal agencies deserves the commendation and gratitude of the American people more than the U. S. Public Health Service. My respect for its contribution to the nation's stability was acquired during the war. As I studied the social chaos that prevailed in all of our major production centers, the field men of the U. S. Public Health Service, under the wise leadership of Dr. Parran, seemed to be the only people who knew exactly what they were to do and how to do it. What I admired most about their outstanding achievements was the effectiveness with which this federal agency worked with state and local governments, with voluntary organizations, and with the numerous Army and Navy officials. The decentralized administrative policies of the U. S. Public Health Service are, in fact, the best example we possess that federal leadership of state and local endeavor can be achieved without federal domination.

In planning for a national health program, nothing is more important than the preservation of this thoroughly American tradition of federal, state, and community coöperation, if our country is to remain a republic. The battle over the organization of a nation-wide health program has been so violent because its solution will go to the roots of our existence as a nation of free men. What we must try to achieve is health not only of the individual but of society itself. Democratic ends demand democratic means for their realization. Our people must face the fact that if they want truly civilized, humane, and serviceable institutions, if they want health in its widest aspects, mental, physical, moral, and even political, then they must achieve it in their own good way. Assuredly they will have lost their most cherished characteristics—their individualism, independence, and freedom—if they meekly allow the experts to set the patterns for their thinking. They must make their own institutions, or their institutions will make them. Therefore, this problem of nation-wide health programs is a question on which every responsible citizen must take a stand, for the answer to it will affect the whole destiny of our nation.

Yet the medical groups who seem to think they are defending individualism and freedom when they blindly oppose every coöperative endeavor of the lay public, must realize that we have a mass health problem on our hands and the mass of the people want action. And action there will be, whether right or wrong. The election results are clear proof of this. As a Republican who testified fruitlessly before the 80th Congress on behalf of various welfare measures,

* Presented before the Health Officers Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

I am convinced that the overwhelming Republican defeat was due mostly to the obstruction of social progress by the House leadership. I hope the American Medical Association will take the lesson to heart. At present the people still look to the medical profession and to you public health workers for guidance and leadership out of their confusion, but whether they get it or not, they will not be denied the elementary rights to which they feel every American citizen is entitled.

It is essential that the public should be informed on the actual progress toward sound public health planning that already exists in many of our states, and on a nation-wide scale. Many people who advocate a revolutionary, over-centralized, federally dominated organization for health protection, do so only because they see no other alternatives. Therefore, the best service I can render here is to outline our most constructive experiments toward a national health program as well as it can be done in a few minutes.

Since health is a function of the community's total way of life, the furtherance of health is dependent in our democratic nation upon local initiative, support and participation of the entire community. It is also dependent upon such closely related factors as education, housing, nutrition, and a basic standard of living. Therefore the first step toward dynamic planning for health is the formation of state and local citizens' councils wherever they do not already exist, to serve as the conscience of the community on all matters of the general welfare.

These councils should bring together lay and professional groups and individuals for the study and solution of their health problems, and for the correlation of all services affecting health. These councils should be appointed by the governor or mayor if their reports are to carry weight with officialdom and with the people. They should join forces with local health departments and with the state hospital authorities appointed by the governors under Public Law 725. This would be the quickest way to achieve coöperation between public and private endeavor and the surest method of eliminating the hostility between the expert and the civic leader that is now one of our chief handicaps toward social progress. These councils should gather factual data to establish existing health needs, and develop methods for the effective implementation of planning.

Only by the encouragement of this grass-roots movement, only through intimate face to face associations and the satisfaction to be derived from a sense of sharing in creative activity, can we control the frightful impersonality of centrifugal forces and get the necessary impetus behind a sound national health program. At the same time our people would realize the difficulties involved in the organization, administration, and financing of a national health program that will be effective, while remaining responsive to changing community needs and to the scientific progress of medical care. The utopian promises of compulsory national health insurance have lead some of our people to think that all we need is federal legislation to implement it and, presto, every medical need will be met. Advocates of the Murray-Wagner-Dingell Bill should never lose sight of the hard truth that a national compulsory insurance program supplies merely organization and money, but does not supply hospitals, doctors, nurses, dentists, and other essential personnel. If our citizens learn by direct participation in planning for their own health that the problem is closely enmeshed with their daily lives and with the availability of local facilities, they will be sure to reject authoritarian over-centralized plans that might destroy the very aims they seek.

Since local health departments meeting minimum standards are now available to no more than one-third of the country, these citizens' councils should demand that this basic service be made available to all the people without delay. Dr. Haven Emerson asserts that "not more than 4 or 5 per cent of our people are today receiving a local public health service that measures up to the simplest demands of science and to an art of preventive medicine which our state of general culture has a right to expect." He estimates that about 1,200 such local health departments staffed with qualified persons would suffice to cover our entire continental population instead of some 18,000 now operating under frequently inferior conditions of personnel, and serving but 67 per cent of the population. We must insist upon the total coverage of our people by local health units capable of putting the science of preventive medicine to work for the whole social structure. There is not a single goal, whether in the field of public health service, of medical care, of nutrition, of education in health, that can function until we achieve these health departments in each community.

Dr. Emerson estimates that between 55,000 and 60,000 employees will be required to staff these 1,200 local health departments in order to give the minimum health service to all the people.

That means the immediate recruiting and training of skilled people in adequate numbers. It will also take legislation on local, state, and federal levels to finance the program. A bill to help the states finance these local health units on a matching basis was introduced in the last Congress. Most of our states can and should finance their own health departments. Yet federal aid will certainly be needed in some twelve of our less productive states.

What we need to determine the financial responsibility in this and all other welfare programs, is a clarification of the administrative and tax relationship between the federal, state, and local governments. If we do not hasten to clarify these relationships, we shall find it very difficult if not impossible to do so in the future. For we shall find ourselves too deeply committed to over-centralization and a top-heavy bureaucracy, simply because the taxing power is too heavily weighted in favor of the federal government.

To improve the coördination of health facilities in state and local governments, all major federal health agencies should be grouped together under the U. S. Public Health Service. Federal, state, and local health agencies must also work more closely with the public schools, and our educational system everywhere should be improved and equalized as between geographical areas. Health without education and education without health are both impossible.

In order to have fewer sick people and fewer people with sicknesses, development of a preventive health program, based upon constant research, should go hand in hand, if not with precedence over the expansion of curative facilities. In deciding this question of priority, our whole philosophy of democratic living is involved. Have we positive aims for the reinvigoration of the human mind, body, and spirit, or are we merely interested in alleviation of the suffering created to a great extent by our social defects? Far too much of our welfare work is now devoted to compensating people for misfortune that might have been prevented. To be sure, we must protect the sick, the weak, and the incompetent. But it is high time we spend more of our energies on protecting the well, the strong, and the talented, if our nation is ever going to develop its fullest human, civic, and ethico-political capacities. If we are not to build a gigantic centralized welfare-state in which the politicians take over the rôle of guardians, our liberty must be the means of creating

and promoting the superior individual.

After all, the Department of Agriculture spends billions for the promotion of the health of cattle and the productivity of the soil. It would pay infinitely greater dividends in cold cash, to say nothing of higher values, to promote the total well-being and the productivity of our human resources. Just as the county agent of the Department of Agriculture puts the latest expert knowledge about agriculture at the disposal of the farmer, so the local health officer must put the fruits of research on preventive medical care at the disposal of the people as a whole. This preventive program must also become the link between the individual and the curative organizations.

How then do we develop our hospital system so that its services are accessible to all the people, and how do we finance such services?

To salvage the unique system of hospital services and connected medical training that we now have, is a first essential step. The enormous cost of free hospital care for relief patients was formerly met in these voluntary institutions by payments of the middle and upper income groups and by voluntary gifts. Now these sources of income are drying up while the various costs are skyrocketing. In most big cities, the municipal governments already pay for part of the free care of the indigent. It seems obvious that every municipality should now pay the total cost for the treatment of its relief cases, whether in the hospital or for outpatient services. In some cities the state will have to supplement the city payments in proportion to the local tax resources. If the hospitals were relieved of the heavy costs of free care, they could use their endowment funds and other financial resources to reduce charges very considerably for the lower and middle income groups.

To make sure that charges to the middle income groups will be lowered as the states and municipalities take over the total cost of free care, the cost-statements of voluntary hospitals, that furnish the basis on which the state pays the hospital for its services, should be subject to review by the state auditor. This practice already exists in several states. In Maryland, for example, the state, counties and cities have already accepted the responsibility for the relief load, though they do not as yet carry it in full. The machinery is a contractual relationship between the hospitals and the board of health. By this gradual, evolutionary approach toward the redistribution of hospital costs, Dr. Lowell J. Reed, Vice-President of Johns Hopkins University, is convinced that better care can be secured for the average person at a price he can pay than by a nation-wide revolutionary upheaval in the financing and distribution of medical services.

Since the hospital is the basis of medical care, the federal government cannot at present underpin a national health program more soundly than by expanding the hospital facilities of the country through the Hospital Survey and Construction Act. If the plan for the decentralization of hospital care is carried out, we would then have the large central hospital with its medical school, making available its specialized facilities to the subsidiary area hospital, to the smaller community hospital, and to the local health center. All the benefits that modern medicine has to offer would be chanelled from the large modern medical centers to the remotest rural hamlet. From the top down would flow an educational program, both inservice and preservice, for all types of health personnel—physicians, dentists, nurses, technicians, and others. On the other hand, there would be a referral of patients from the small community health center, to the area or community hospital, and to the large medical center.

The introduction of planning for hospital and other health service on a regional basis demands the immediate integration of the Army and Navy hospitals and the Veterans' hospitals with those to be constructed under the Hospital Survey and Construction Act.

At present the government is not doing as well as it should by the long-stay patients, the mentally and chronically ill, and the tuberculous cases. The Commission on Hospital Care has pointed out that the care of mental illness and chronic diseases should be decentralized and integrated into the general health program of each community hospital, with special emphasis on prevention. "When that happens" said Graham L. Davis, "those diseases will disappear as major health problems."

In order that the Hospital Survey and Construction Act may serve the needs of the entire nation, its appropriations should be increased and its provisions for financing of construction and administration amended. The areas with inadequate tax resources cannot possibly carry two-thirds of the load and therefore cannot benefit from the Act in its present form.

If we take for granted that the best medical care shall be available to all of our people, how is it to be financed for low income groups?

I have time to consider the thorny problem of compulsory versus voluntary insurance only in its broadest aspects. The construction of adequate hospital facilities and the training of sufficient personnel to staff them must have first call on public funds, for no system of insurance, voluntary or compulsory, can have validity without them. If we rush into compulsory national insurance, the drain on public funds would be so great that the coverage of the nation with properly staffed health departments and the nation-wide implementation of the Hospital Survey and Construction Act would be impeded, if not impossible.

On the other hand, it is also a fact that we shall be forced to accept compulsory national health insurance before very long, unless we make a greater success of voluntary health insurance without delay, especially for the low income groups. The fear of sickness and the high cost of modern medical care must be lifted from the minds of our people. To achieve this end, the medical profession must throw itself wholeheartedly behind all coöperative insurance plans whether for medical service or hospitalization. The local medical societies must encourage, instead of blocking, the efforts of the Blue Shield to establish standards and to develop complete coverage of medical service. The various independent insurance systems in industry, labor unions, and other groups have come into being only because the Blue Shield has not improved the range and quality of its medical care. The first requisite is a predominance of laymen on the local boards. It is significant that the Blue Shield, which is dominated by doctors, has no standards of medical care, whereas the best coöperative insurance groups under lay control have succeeded in establishing standards over the opposition of the medical profession.

As a matter of fact, the pretensions of the American Medical Association that the doctors must control the development of a national health program if it is not to create what Dr. Fishbein calls "peasant medicine," cannot be substantiated by experience. The voluntary hospitals, America's pride, which are managed by lay boards, have always insisted upon standards, whereas the proprietary hospitals, whose boards lack consumer representation are mushrooming all over the country, because they have no standards and any doctor with a license can work in them regardless of his qualifications. With the whole-

hearted coöperation of the American Medical Association, the Blue Cross and especially the weaker Blue Shield could raise the standard of medical care all over the country. The innumerable voluntary insurance plans if pulled together under the Blue Cross and the Blue Shield would then create the two strong nation-wide insurance organizations we need. Moreover, insurance groups as vast as this could modify their rates for various parts of the country and reduce the rates for the membership as a whole. The names of these organizations do not matter. The important thing is that we achieve a unified system.

Health education and national health programs must be built from the community upward. But the process need not be slow if the state and federal public health officials as well as the medical profession do their share and mesh their efforts with those of the hometown folks. With determination, applied intelligence and coöperative effort on every government level, and between civic and professional leaders, we can transform the health picture in this country within five years and make it possible for every American family to obtain the medical service it needs, and for every American child to develop its maximum potentialities. We must all work together loyally and prove that democratic methods can deal effectively and quickly with all of the dynamic problems of the day.

Harvard Develops Training Program for Cancer Control Officers

According to the *Harvard Public Health Alumni Bulletin,* the Harvard School of Public Health, Boston, has received a substantial grant from the U. S. Public Health Service and the Massachusetts Division of the American Cancer Society to organize a program for the training of cancer control officers to fit them for the administration of cancer control work in either official or voluntary health agencies and for epidemiologists, statisticians, and health educators in order to prepare them for effective participation in cancer control programs.

Leonid S. Snegireff, M.D., Dr.P.H., who has been appointed Associate Professor of Cancer Control in the Department of Public Health Practice, will have charge of the program, which will be closely integrated with the new Cancer Detection Clinic at the Palmer Memorial of the New England Deaconess Hospital and with the cancer control programs of the Massachusetts Department of Public Health and the Massachusetts Division of the American Cancer Society. Miss Beryl Roberts, formerly Director of Health Education in the Massachusetts Tuberculosis League, has been appointed Instructor in Health Education, and will be responsible for the development of the health education work in connection with the cancer program.

In addition to the basic postgraduate training leading to the Master and Doctor of Public Health degrees, the cancer control officers will receive special instruction through the coöperation of agencies in the state concerned with cancer diagnosis, treatment, research, and education.

Improving the Quality of Medical Care

The Training of Personnel *

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TRADITIONALLY, and in some quarters even today, the term "medical care" has been used synonymously with the services of a physician. During the last several generations, however, the accumulation of medical knowledge and skills has been so vast and the application of preventive, diagnostic, curative, and rehabilitative measures so complex that a radical alteration in this concept of medical care is inescapable.

If, for a moment, we limit our consideration to medical care within the hospital, recognizing that such institutional services represent only a limited, though vital, fraction of the total requirements of a modern community, I am reminded of a comparison made a few years ago by one of this country's outstanding clinicians and medical educators. As an illustration of the tremendous changes in medical practice which had taken place during his professional lifetime, he portrayed the contrast in the type of medical care received in the same hospital by two patients suffering from the same disease process, one treated in 1908, the other in 1938.[1]

In the first instance, the patient remained in the hospital for two weeks and the total record included two and a half written pages. The observations thus recorded represented the combined efforts of two physicians—the attending physician and the house officer—with assistance provided by one specialist, the pathologist-bacteriologist.

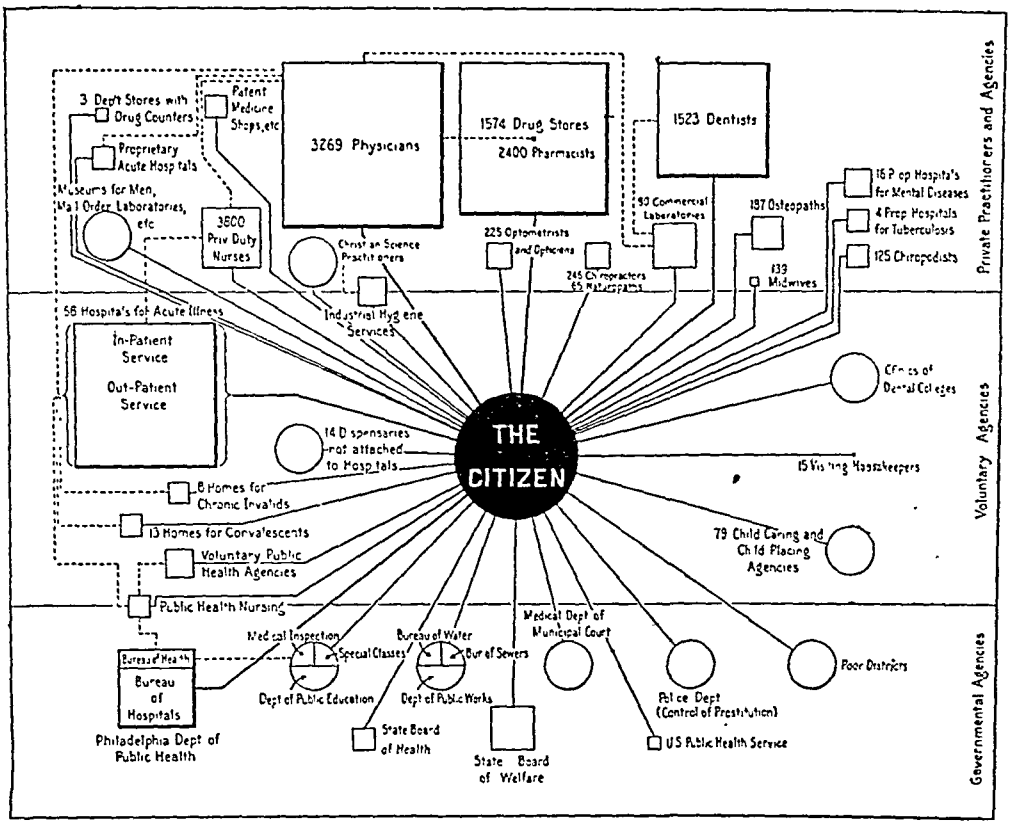
The second patient, cared for 30 years later, also suffered from heart disease and was still in bed after 19 weeks of hospital attention. At that time the total written record comprised 29 pages and represented the combined observations of 3 visiting physicians, 2 residents, 3 house officers, 10 specialists and 14 technicians; a total of 32 individuals. This enumeration, of course, does not take into account the additions in supporting personnel within the hospital made necessary by the rapid evolution of institutional medical services.

If we turn our attention to the broader panorama of complete health and medical services for the community, may I refer you to the accompanying chart (Figure 1) entitled "The Complexity of Medical Care," drawn from the final report, "Medical Care for the American People," of the Committee on the Costs of Medical Care.[2] This chart was prepared in the course of one of the studies made by that committee in Philadelphia in 1928. No one need be reminded that, in the 20 years which have elapsed, many other agencies and institutions have been added to those enumerated at that time, and many of those listed have expanded their resources and services.

Abundant additional evidence is available, as Franz Goldmann has recently stated, that the term "Medical Care"

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

FIGURE 1—From Medical Care for the American People, Final Report of the Committee on the Costs of Medical Care (Ray Lyman Wilbur, Chairman) *Publication No. 28,* the University of Chicago Press, 1932, Chicago, Ill.



THE COMPLEXITY OF MEDICAL CARE

This diagram shows the complex network of medical facilities in a large city. Many of the significant interrelations could not be depicted here. The area of each square indicates the relative costs to the citizens of Philadelphia in 1928 of various types of medical care. For items indicated by circles, data are unavailable.

must "be construed to mean all the personal services by members of the health professions, and all the clinic, hospital, and related facilities that are necessary to attain the highest level of health, prevent disease, cure or mitigate illness, and reduce, if not prevent, disability, economic insecurity, and dependency associated with illness . . . The various types of facilities and personal services essential to adequate care of the individual in health and sickness are so closely related to one another and so interdependent that they should be considered as an entity. Professional services for prevention and treatment must be combined if the war against disease, human suffering and poverty resulting from illness is to be waged successfully. The chain between illness and poverty must be broken, and organization of medical care in the widest sense of the term can go far toward achieving this objective."[3] It is on such a concept of medical care that I wish to base my discussion of some of the problems associated with the training of the personnel required to improve its quality.

According to the best figures available at the present time, approximately one million and a half persons are engaged as professional, technical, and other per-

sonnel in providing medical and allied services for the American people. Of these only one in seven, or perhaps one in ten, is a physician. Within the medical profession itself, in a short space of years, at least twenty-five separate specialties, I believe, have gained recognition; sixteen of these have been established with national qualifying boards. The training required for each of these branches of medical practice creates special problems, but a discussion of them at this time would not be germane.

In addition to the physician, the nurse, the dentist, and the pharmacist have long been identified with the provision of medical care. But what has not been appreciated sufficiently is that in the last quarter of a century a veritable host of indispensable coworkers have been brought into existence, and as Grant has pointed out, "There will not be adequate medical care . . . until auxiliary workers are provided in adequate numbers and their training and supervision well organized."[4] I know of no comprehensive listing of all these specialized skills which are now being called upon to assist and supplement the efforts of the physician. It is worthy of mention, however, that each year sees the formulation of minimum training and other requirements for additional groups of professional and semi-professional workers. As an example of what can and must be done on even a broader scale than at present, the Committee on Professional Education of this Association has accomplished an outstanding task by establishing basic qualifications for some fifteen separate categories within the public health field alone.[5]

If I concentrate my attention during the remainder of this discussion on the training of the physician, I do so because of my own greater familiarity with some of the problems in that area of education, and because of my firm belief that as the key individual in the medical care team the quality of service which the physician renders is immediately reflected in the performance of his associates. Also it cannot be overemphasized that despite its present-day mammoth proportions, medical care must always remain a highly personal service—one based upon intimate personal relationship of physician and patient. Even though a huge number of persons are now engaged in medical care, the physician occupies the hub position around which all others must rotate. It is his task to correlate, direct, and supervise the work of all others and it is to him the patient invariably turns for help and guidance in utilizing other skills.

The objective of any sound plan of training aimed at the improvement of medical care must be the preparation of the physician and his associates to meet adequately all of the health needs of the individual and of society. The "value," the "degree of excellence," or the "relative goodness"—that is, the quality—of the services they are to render is so insusceptible to accurate measurement that, at best, any indices of improvement thus far improvised are admittedly crude. It has been suggested that were we merely to augment the supply of physicians and other professional and technical personnel, a large share of our task could be accomplished. But even if one were to acknowledge glaring deficiencies in numbers, there is ample reason to believe that tremendous benefits would accrue were those workers now engaged in the health and medical field more equitably distributed, and were some effort made to improve the efficiency and utilization of available skills.

Several months ago, Dr. Alan Valentine, President of the University of Rochester, presenting a statement for nineteen university presidents, reported that for the last academic year (1947–1948) "The budgets of the seventy-

seven medical and basic science schools . . . exceed $43,000,000 and, generally speaking, this figure does not include costs of patient care in teaching hospitals, or plant maintenance, or general university administration, or research grants from foundations, industries and government"; and, continuing the quotation, "all things considered, I believe that medical schools now need about $40,000,000 more per year."[6] This sum of more than 80 million dollars, considered by the best qualified authorities as essential each year for the proper education of the approximately 23,000 students now enrolled in medical school, is admittedly small compared to what the American public spends annually on vitamin pills, jewelry, and recreation, and is less than is expended by those seeking admission to some of the major horse-racing establishments throughout the country. Nevertheless, at the present rate of expenditure, it costs the average medical school almost $9,000 to grant a single degree; the expenditures ranging through rather wide limits from slightly under $3,000 to somewhat more than $38,000. Of this amount, student tuition accounts for approximately 25 per cent.[7]

In his discussion, Dr. Valentine pointed out that the medical schools of the country are faced with a desperate economic crisis brought about by the difficulty of maintaining their current sources of income, plus the fact that to continue their present programs of teaching, the additional amounts needed year by year represent the income, at present interest rates, of an increased endowment of about one billion dollars. To this must be added the 200 million dollars which 55 schools are now seeking or estimate they need for replacement and improvement of physical plant and facilities. And yet, you will note, I have made no mention of the equally grave, though less well analyzed, financial requirements for the proper education of the other personnel essential to proper medical care.

It is possible that a satisfactory solution can be found through federal aid for professional education along such lines as those proposed by Senator Thomas of Utah in the last session of Congress (S. 2588, 80th Congress, 2nd Session). Until recently, however, the extension of tax support of medical education has been frowned upon in many quarters, even though more than one-third of our present graduates are receiving their degrees from institutions dependent primarily on governmental financing. It is fundamental that the needed support for the training of medical care personnel be forthcoming and yet, with costs and tuition rising rapidly there is sound basis for assessing the product which is now being turned out before jumping to the conclusion that all that is needed is more of the same.

It should be remembered also that since the turn of the century, the phenomenal addition of some 17 years to the life span of the American people has been shared by those entering the medical profession. Assuming that a physician begins practice at about age 30, his expectation of life at that age now amounts to almost 39 years.[8] Thus, his training and preparation for practice must furnish him with the basic equipment not only for the medical services he is called upon to render today, but for the type of professional endeavor in which he will be engaged many years hence. Moreover, we must provide postgraduate and continuing education of the physician of a quality at least equal to that which we demand of our undergraduate educational programs. Raymond Allen has expressed it most succinctly—"Any sound plan of medical education must embrace the entire educational process from childhood to retirement from practice."[9]

The period of medical progress which we now enjoy has been characterized by

the successful application of the great technical advances of the natural sciences, chemistry, physics, and biology, to the major disease processes to which man is heir. The focus of interest in the training of the physician has been drawn more and more to the mastery of isolated technological procedures and to the understanding of the structure and function of organs and systems. Though even greater triumphs lie immediately before us along this avenue of attack, in so proceeding "we have broken the human being into his component parts, even into individual cells, better to understand the workings of this marvelous living organism, only to become preoccupied with the fascination of the parts and to lose sight of the man. All too frequently the vital processes of synthesis and of understanding the working of the whole have been left for the graduate physician to accomplish as best he can in a later period of actual medical practice.

"We must not permit the brilliant accomplishments of the natural sciences to overshadow the fact that social conditions under which human beings live may contribute to the causation of disease, as well as to satisfactory treatment or prevention, just as much as physical, chemical, or biological factors. To be sure, the social sciences have only recently begun to make available to the physician highly refined techniques of study or scientific principles which can be applied readily to everyday problems. Too often has the physician been prone to overlook the vast contributions to health made by widespread public education, community sanitation, improved housing and working conditions, better general nutrition and many other social advances; and even at times, he has tended to minimize the importance of economic security of the family and of the group in the purchase of specific health and medical services."[10]

There are some of us who firmly believe that we stand today on the threshold of a new era of medical advancement—one in which the study of man as a social being, as well as a biological entity, may yield as great if not greater dividends in health than have been achieved through the less comprehensive approach of the past. Certainly, if prevention of illness and the promotion of health in the positive sense of the term are our objectives, such a perspective is an essential one.

We are strengthened in our conviction by the proposals for medical education of the future recommended in the report of the Goodenough Committee in Great Britain[11] and of the New York Academy of Medicine's Committee on Medicine in the Changing Order,[12] and by what is already apparent in some of our leading institutions of medical education.

Early this year a joint committee of the Association of American Medical Colleges and the American Association of Medical Social Workers published the findings of a three year study entitled "Widening Horizons in Medical Education"[13] in which current trends in teaching the social and other environmental factors in medicine are examined. As primitive and experimental as these efforts may be at the present time, they offer considerable encouragement to those who maintain that every physician must be prepared to direct his efforts in the control of tuberculosis, for example, through an attack upon social maladjustment as well as upon the tubercle bacillus; that he must include the public health nurse and the medical-social worker as well as the radiologist as integral members of his team, and that prevention of exposure and early case finding are infinitely more effective procedures than are pneumothorax or thoracoplasty.

To accomplish such a task, it will be necessary to utilize even more varied skills and greater resources than have commonly been employed in medical

education. No longer can medical care be provided in apparent isolation from the vast body of knowledge now being accumulated by the sociologist, the psychologist, the anthropologist, and the educator, to mention only a few. If anyone dares to minimize the contributions to medical care made thus far by the social scientists he might be reminded that the chemist, the physicist and the bacteriologist responded brilliantly when the physician brought to them for solution the challenging problems encountered in daily practice. Also, it is an interesting commentary on our times that many of the required resources exist in great abundance in the very environments in which our medical schools are located, and seek the opportunity to be of service in better fitting the future practitioner of medicine for his appointed tasks. In an experiment in which I have participated, it has been possible to weave effectively into an undergraduate program in preventive medicine the excellent physical resources and the expert skills of the staffs of four governmental agencies and more than a half dozen voluntary agencies actively engaged in community health work. Fifty years ago, the hospital and the medical school joined forces to great mutual advantage. On the one hand the medical educator could draw his student out of the lecture hall and the dissection room and enhance his theoretical training with practical experience at the bedside of the sick patient. In return the hospital and its staff received the intellectual stimulation and acquired the scientific methodology which only a close and continued association with an academic institution could provide. Today the public and private health agencies stand in the same position held by the hospital at the turn of the present century.

Better quality of medical care for the present, as well as the future, demands that the medical student as well as those preparing for membership in the associated professions be trained not only in the lecture hall, the laboratory, and the hospital; but in the clinic, the health center, the factory and workshop and, yes, even in the home, wherever the needs of the individual and the group require them to go. As the institution charged with the education of the physician, the medical school today thus has the unique opportunity and responsibility to serve as the necessary catalyst in raising the health status of the community. Through it a two-way channel can flow enriching the health agencies as it has already enriched the hospital, and in return its students will be better prepared to shoulder the responsibilities which later will be theirs. It is through such a pattern as this that we can best assure the proper training of personnel.

Before concluding this brief discussion, it is imperative that some reference be made to an indispensable link in the chain leading to improvement in the quality of medical care, for the future performance of the student is inseparably bound to the quality of his teacher. In keeping with the derivation of the term "doctor" and as set forth in his Hippocratic Oath, the physician has always recognized his fundamental obligation to transmit the fruits of his knowledge and experience to those who are to follow. Even today, a major share of the clinical teaching in the undergraduate curriculum as well as in the internship and residency periods is borne by the volunteer instructor, and modern medical education would not be possible but for the tremendous contributions in time and effort made by these members of the medical profession.

Nevertheless, since the turn of the present century there has been an accelerating need to supplement our teaching teams with a nucleus of well trained and inspired full-time and part-time instructors whose task it is to provide continuity and unity to our increasingly

complex educational pattern. In addition to such assignments this relatively small group of individuals has been largely responsible for many of the most significant advances in present-day medical practice and their devotion to research and teaching has served both as a guide and an inspiration to all students with whom they have contact. If we are to insure for the future the quality of medical care now known to be possible we must seek for such posts the best that our schools are now graduating; we must assure them the security which only a few now possess and we must provide the opportunity and encouragement to apply their talents to the larger problems of medicine now awaiting solution.

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Disposal of Fluorescent Light Tubes

Industrial Lights, Division of Industrial Health, South Carolina State Board of Health, for January, 1949, calls attention to possible hazards from the indiscriminate breaking of fluorescent light tubes. Most types contain beryllium, which if it enters cuts or wounds, will delay or prevent healing and lead to chronic inflammation. The following precautions are suggested for those disposing of burned-out tubes:

1. Wear protective goggles and gloves at all times.
2. Break lamps out of doors (where possible) in waste disposal areas, or in ventilated hood and, to avoid unnecessary dust, within the waste container.
3. Where large numbers of tubes are disposed of, the operator should be required to wear a respirator approved by the U. S. Bureau of Mines for toxic dusts.
4. For ultimate disposal the broken lamps should be thrown into water or in a dump where they are not likely to be disturbed. Under no circumstances should the broken tubes be placed in an incinerator.
5. In situations where it is necessary to break the lamps indoors, it should be done in an isolated room and in a hood, so as to minimize escape of dusts. Sufficient exhaust ventilation should be supplied to the hood to provide an air intake of at least 125 linear feet per minute at the breathing level.
6. The division of industrial health of the state department of health should be consulted when doubt arises as to the best procedure.

Improving the Quality of Medical Care

Group Medical Practice *

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THE importance of training of personnel, regional planning, and sound administration in improving the quality of medical care cannot be sufficiently stressed. But while these three alone can accomplish wonders, they can be most effective when they are associated with group medical practice in the day-to-day delivery of health and medical services. Conversely, although group practice alone can greatly assist in the improvement of the quality of care, it can reach its full potential for this purpose only when it is intimately related to the other three factors. The intent of this paper, then, is to set forth the specific contribution which can be made by group medical practice in the combined effort to improve the quality of medical services.

Perhaps the most significant fact about what group practice can do toward improving quality is that its influence in that direction is inherent in group practice—it improves quality almost automatically, so to speak. Note well, however, the word "almost"; as we shall see later, pitfalls await group, as well as individual, practice, and these must be avoided if the inherent values of the group method are to be realized.

What is there about group medical practice that permits one to state so confidently that its influence is generally bound to be conducive to improved quality? To appreciate this, it is obviously necessary first to understand what is meant by the term "group practice" and something about how it operates. In general, we can accept any one of several recent definitions of the term, all of which stress five factors: (1) there are several physicians (three or more has been suggested as a minimum number by the Public Health Service); (2) these physicians are expert in more than one special field of medicine (three orthopedists associated with each other, for instance, would not be considered a "group" in the sense meant here); (3) the physicians are systematically associated, as in a partnership or as paid members of a staff of some organization (hospital, industrial firm, labor union, coöperative, etc.); (4) income from practice is pooled and, after overhead costs, reserves, and so on have been provided for, distributed among the physicians on some basis other than solely the amounts paid to the group by the particular patients of each; and (5) the physicians use in common professional facilities and assisting professional, technical, and clerical personnel.

There are, as most of you are well aware, many kinds of groups, for example, those which provide a general medical service as distinguished from those whose practice is mainly devoted to referred cases. Sources of income likewise vary, from those supported largely by fees-for-service paid by in-

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dividual patients, to those chiefly dependent on a prepayment plan, an industrial or labor organization, or a health agency (official or voluntary) for their livelihood. For present purposes, the *kind* of group makes very little difference—although the "kind" does affect quality of service in many subtle and important ways. It is the *group method* itself in relation to quality of care which we are discussing. Nor are we greatly concerned here with the particular administrative structure involved, whether partnership, corporation, coöperative, and so on, although this, too, obviously can have great importance in considerations of quality. Here we shall emphasize more the factors common to virtually *all* kinds of medical groups, however they make their professional living.

It seems to me that group medical practice *per se* tends toward improving the quality of medical care because of the incentives it brings about in two separate, though intimately related, areas, namely the professional and the economic. In professional matters, the qualitative advantages of the group method arise from factors such as the following. The individual physician has easily available to him, in a medical group, the varied skills of his medical colleagues and associated personnel. He usually has access to technical facilities, such as laboratory, x-ray, and physical therapy equipment, vastly superior to what he as an individual could afford or could efficiently utilize. These associations stimulate and educate the physician as a member of a team. His specialized colleagues may be called in at a moment's notice; his daily work, in the nature of things, is constantly under the scrutiny of the other physicians of the group, senior and junior. In such circumstances, any man wants to do his best—and he expects their best from his associates. Other professional advantages work toward the same end A group may arrange systematically for free time for its individual members, whether for recreation or study. The young physician in a group may immediately exercise, under suitable supervision, the full range of his professional capacities instead of being obliged to wait, as is all too common in individual practice, for patients to accumulate while his hard-earned skills grow rusty. It is thus clear that the professional influences in a medical group provide an inducement to the improvement of the quality of service rendered by its physicians, individually and collectively.

In the economic area, the influences are no less conducive to our purpose. First, the group method, by its very character, makes for economies which aid rather than hinder professional quality. The ability of a group to obtain at relatively low cost to each individual physician, better technical equipment and personnel than its physicians could afford separately has already been mentioned. Additional economies are achieved by the fact that this equipment and personnel can be used to greater advantage by the group than by an individual physician. Many a general physician, for example, has in his office costly x-ray and physical therapy equipment which he can use but a few hours each day, but in a group such equipment can be kept busy to the limit of its capacity.

Second, physicians in group practice are apt to earn, whether because of the economies achieved or for other reasons, much higher net incomes, on the average, than those in individual practice. A recent study by "Medical Economics," for instance, showed that in 1947 whereas physicians in solo practice received an average gross income of approximately $18,000 and a net of $11,000, physicians in partnership or group practice averaged $27,000 gross and $16,500 net. While amounts of earning are obviously not necessarily

commensurate with quality of care, the possibility of a better living would seem bound, in the long run, to aid in attracting the better trained physician to group practice. The advantages of steady income and, in many groups, of a planned retirement system are other influences of the same character. The joy to a physician of being relieved of the tedious burden of business management, of hiring personnel, purchasing, setting and collecting fees, offered by a medical group through its business manager, is a third advantage in the economic area which not only attracts the best type of physician but leaves him free to devote his full time and energy to his professional work.

But, above all, from the standpoint of quality of care, the financial arrangements of group practice induce coöperative rather than competitive effort on the part of the physicians of a group. A healthy competitive element exists over the years, of course, in any group, because each physician wants to demonstrate his value to the group as a whole and thus his right to a larger share of the proceeds—even this is a stimulant for high quality in a physician's service. But for the daily work of rendering medical services, the economic as well as the professional incentives in group practice lead toward coöperation and, therefore, improved quality. For in a group, the good work done by any individual physician reflects credit on the whole group. Discredit for the whole group obviously results likewise from any physician's poor work. Therefore, all physicians of a group, if only from purely economic motives, are constantly stimulated to do good quality work themselves and, equally important, to urge their associates to attain the same ideal.

In most existing medical groups, the physician's share of the group's net income is based upon his competence and his general value to the group as a whole. These shares are usually not determined primarily by the number of patients seen or the number of services rendered by a given physician, although such matters may be taken into account. As a result, individual physicians in a group lose no income when they refer a patient to another physician, and have no financial incentive to "hold on" to a case personally. Rather, the financial interest of each physician is best served if the most thorough and satisfactory job possible is done for the patient by the group as a whole, so that the group as such may attract and keep a good clientele. Thus, the economic incentives of group practice encourage physicians to make use of the varied skills of their colleagues and of the group's laboratory and x-ray services for diagnosis and treatment as fully as may be medically desirable for the patient's benefit. Such teamwork medicine is of course the essence of group practice, and is obviously necessary to produce a high quality of care amid the complexities of modern medicine which cannot conceivably be grasped by any one physician alone. So we see that economic incentives for high quality, as powerful as the professional ones mentioned earlier, spring from the nature of the group method itself.

The value of group medical practice in improving the quality of medical care is not limited, however, to the positive advantages to be found within a medical group. It arises also in a negative sense, from the fact that group practice, and as far as can now be ascertained only group practice, will serve to correct many of the evils apparently inherent in the individual, competitive practice of medicine on a fee-for-service basis. These evils are in large part of recent origin and do not spring primarily from any malign intent on the part of the physician as a person but rather from the sane scientific advances which have made teamwork in medicine necessary and desirable. Some of these evils have

been referred to by implication in describing the advantages of group practice. The waste by duplication in individual offices of often inadequate but nevertheless costly technical equipment and associated personnel, rarely used to their fullest effectiveness, is one example. Another is the waste of the time and skill of the young physician in individual practice who must frequently spend much time in idleness before his talents can be fully utilized. The expensive equipment and highly skilled associated personnel and the long and costly training of the young physician, all of which are in part wasted in solo practice, are, of course, necessitated by the tremendous advances in medical science. All are too precious to waste. Group practice, especially in association with better training of personnel, regional planning, and sound administration can go far toward eliminating this waste.

But of all the evils of individual practice which the group method can eliminate, the most serious is the chaotic state of the relationships of the general practitioner and the various types of specialists with each other and the effects of these relationships upon the care of patients. Clearly, from the patient's point of view, he should be referred to the various types of specialists and provided with laboratory and x-ray examinations as frequently as necessary for the management of his case according to the best standards of scientific medicine, but no more so. Obviously, the exact optimum for such referrals is often impossible to determine in any given case but, over the long run, something very close to it can be achieved in a well organized medical group or on the wards of a teaching hospital. There is no doubt that the optimum can be and sometimes is achieved in solo practice, especially for relatively well educated and well-to-do patients. But the barriers to a proper use of teamwork in individual practice make attainment of this goal exceedingly difficult at best.

On the one hand, the physician in isolated practice may refer his patients to others too infrequently. He may fail to use others' services, for one thing, simply because his years in solo practice have so limited the horizons of his knowledge that he does not even realize that his patient might gain from special tests or consultants' opinions. He may hesitate, too, to refer a patient for consultation or other special service because of the cost to the patient. This may also be true in group practice, of course, but to a lesser extent because, in the first place, the group can control the fees for *all* the services the patient needs and can temper the wind when necessary, while the individual practitioner usually cannot greatly influence the fees set by the individual consultants to whom he refers patients. Second, it is the practice in many medical groups—and a good practice for improving quality—to make no charge for consultations; specialists' fees are charged only when the patient has been transferred to the specialist for continuing study or treatment.

But probably the strongest motive against utilizing referral services to full effectiveness in individual practice is the competitive element. In its crudest form, this means that a physician may not refer his patient to another physician for fear that he may "lose" his patient (and his fee) permanently to the second doctor. More subtly, it means that a physician may fear that by calling for frequent consultations he will undermine the patient's confidence in his own ability. He may believe that his reputation for self-reliance, broad medical knowledge and skill will suffer among his colleagues if he calls on others too much. Most of all, perhaps, he may fear that the consultant will find errors in his work and "show him up" to both the patient and the profession.

For all these reasons and for at least one more, namely, the sheer physical in-

convenience to the patient of going about from one office to another, making numerous appointments with varying periods of delay before seeing the different doctors, there is an inevitable tendency in individual practice not to employ the full medical team to the extent it should be used for realizing the full potential of modern medical service of high quality. The physician in solo practice, therefore, is often obliged to try to perform a range of service up to and sometimes beyond the limits of his technical capacity. This, of course, adversely affects the quality of service obtained by the patient and, in the long run, tends to produce in the physician a habit of superficial performance, trusting to luck and nature that his lack of thoroughness and of specialized knowledge will not cause errors resulting in serious disablement or death.

On the other hand, somewhat paradoxically, the physician in individual practice may under some circumstances refer his patients too *frequently* to other physicians. Here the practice of fee-splitting rears its ugly head. Fee-splitting, like the other evils mentioned, does not occur because of any desire of physicians to perpetuate a harmful practice, but arises almost inevitably out of the character of the individual practice system. I dare say it will continue, in spite of all the laws and professional pronouncements that can be devised, as long as this system is the prevalent method of practice. Here again, the basic reason is the advances in medical science which make specialization a necessity. One can hardly expect the general physician who has correctly diagnosed a case of appendicitis on a $10 house call not to feel that he deserves a lot of the credit for saving the patient's life and not to gaze at the surgeon's $200 or $300 fee with some envy. Moreover, one can understand that the specialist (particularly the young one, just starting in practice) in a fiercely competitive situation may yearn to reward tangibly the general physicians who most assist him in building up his practice by referring cases to him.

But it is not the act of splitting a fee that makes this practice an evil and an impediment to a high quality of medical care. It is, rather, the fact that the split is unknown to the patient and unregulated in amount and volume. Thus, the patient does not know, when he buys a pair of eyeglasses from an optician, for example, that part of what he pays may go back to the doctor who referred him to that optician. The same is true, of course, for x-rays, surgical procedures, and so on. The result of hidden fee-splitting is that if a sizeable split is in the offing the physician may be tempted to refer patients more frequently than is medically necessary and to send his cases to the doctor or laboratory or optician who gives the biggest kickback rather than the one professionally most competent to handle the case. The magnitude of the practice of fee-splitting may perhaps be gauged by the fact that more than 4,000 eye specialists—about one-half of those in the United States—were involved when the U. S. Department of Justice sought to stamp out rebates in the optical industry.

The utter futility, under our individual practice system, of expecting the medical profession to cope with this evil is illustrated by what occurred in New York City in the fee-splitting scandals under workmen's compensation a few years ago. Almost 2,800 physicians were charged with participation in the fee-splitting racket. One hundred and seventeen were definitely exonerated. More than 1,000 were definitely found to have been implicated. A few lost their licenses to practise medicine. But a diligent, personal search of the published records of all medical societies in New York fails to disclose a *single* instance in which any of the remaining 900 "definitely implicated" physicians were suspended

or expelled by a medical society. This is a commentary not only upon the durability of fee-splitting in the individual practice system, but also upon the ability of medical societies to set and maintain professional standards in general. It is in interesting contrast with the promptness and vigor displayed by medical societies in disciplining members who participate in group practice associated with prepayment plans for comprehensive medical care.

Group practice is sometimes considered to be a type of fee-splitting. This is *true* in the sense that a patient's payment is divided according to the group's internal administrative provisions, and does not go exclusively to the doctor or doctors who treated that particular patient. But group practice most emphatically is *not* fee-splitting in the sense that this open division of income among the physicians of a group is *never* a kickback paid for favors received. The patient knows all along that he is paying the group for his service, not an individual physician, and he fully expects the group to divide its income equitably among its members. So division of income by the group method completely eliminates the evils of the hidden kickback system and yet, at the same time, provides a distribution of income among general physicians and specialists more equitable than is possible in solo practice unless fees are split.

From what has been said up to now, you may think I believe that the group method not only is the best way to practise medicine of high quality, but also is without faults, pitfalls, or dangers of any kind. This is decidedly not the case. You will recall that earlier in this paper it was said that group practice was *almost* automatically conducive to a high quality of care. Now for the "almost." For one thing, physicians in group practice are still human beings and, like the rest of us, they do not always get along harmoniously, on either professional or economic grounds. The very closeness of their day-to-day relationship tends to emphasize any differences between the doctors in a group much more strongly than would be the case among the same men in 20 or 30 individual offices scattered all over town. This means, of course, that good methods of self-government, of administration, and of settling disputes are essential for the successful operation of any medical group.

Then, too, group practice can and sometimes does develop an impersonal attitude toward patients which may result in physicians dealing with people as case numbers or case "material" rather than as living persons with emotions, home difficulties, and business problems, living in a community. This is by no means inherent in the group method, but must be guarded against or corrected if it appears. One of the principal safeguards against such an impersonal attitude used by many groups is to make sure that each patient of the group has one—usually a general—physician whom he regards as his family doctor and who, in his turn, assumes real responsibility for the welfare of that particular patient at all times, or at least until the patient (or the doctor) decides he should be under the care of another physician.

Limitation on choice of physician sometimes makes both patients and physicians distrust group practice. It is sometimes claimed, indeed, that the competitive element in free-choice individual practice is a stimulus toward improved quality in the service rendered by the competing physicians. This seems at best a dubious contention, for the untrained "customer" is exceedingly poorly equipped to judge the quality of a physician's service, and may likely be influenced mostly by factors having little to do with quality. For shoes or ice boxes or even politicians the public may have some basis to make a judgment,

but how can it evaluate a surgeon's skill or a bacteriologist's competence? On the other hand, the kind of competition found in individual practice places an emphasis on *quantity* of service and upon the money received for it that certainly distracts the doctor's attention from its qualitative aspects, to put it mildly. Healthy competition exists within medical groups, as already pointed out. Vigorous competition often exists between two or more medical groups also. So group practice can make use of the good features of competition, which are conducive to high quality, while avoiding most of the bad features, which do it harm.

To return to choice of physician, choice naturally *is* limited within any one group, although patients may, of course, leave the group entirely if they wish, and the choice is in any case much less limited than that of the patient in the ward or outpatient department of a voluntary or public hospital. Most groups encourage their patients to select freely among the physicians who are competent in the particular field of service they require. Groups also permit patients to change physicians if they wish. On the positive side, a group is in an excellent position to guide a patient intelligently in the choice of the physician best suited to his needs. Such guidance seems usually to be gratefully accepted by the patient, if it is given tactfully and thoughtfully.

Some groups have irritated their patients by a confusing welter of administrative detail, numerous records to be made out, involved appointment systems to be dealt with, complicated procedures to be followed, puzzling mazes of corridors, examining rooms, laboratories, and so on. These are real danger points, especially in a large group, but most of them can usually be avoided by skillful and patient administrative effort.

Another frequent charge is that, in group practice, physicians are apt to use the readily accessible consulting, laboratory, and x-ray services too freely —in other words, to show a tendency to give every patient "the works," whether he needs it or not, often at extravagant expense. This obviously can happen. But studies of numerous groups in actual operation indicate that it happens infrequently and need not happen at all. Indeed, an interesting study made two years ago by the Pennsylvania Hospital Association showed that in several sample private groups, patients' total fees for accessory services were considerably less than they would have been for the same services procured through solo practitioners, and in several instances less than the fees would have been in voluntary hospital outpatient departments. As a matter of fact, a well administered group can control excessive use of such services far better than can individual practitioners.

Finally, it is sometimes said that physicians in medical groups tend to stick too close to their building, being reluctant to make home visits, go to rural areas, etc. This also can happen and has happened, particularly in the so-called "reference" groups. Again, however, this weakness is not inherent in the group method. Many groups diligently serve the people of their communities at home or wherever else they need to be cared for, and some have successfully established part- or full-time outposts in small towns or rural areas which were so small or so poor that they had for years been unable to support an individual practitioner. But because the outpost doctor also could spend part of his time in the group's center and could send patients there for complicated problems, the group could easily afford to serve the little community without mileage fees or hurried, long ambulance trips.

It can be seen, therefore, that there are indeed problems to be solved and many dangers to be avoided if group

medical practice is to provide the high quality of medical care it is potentially capable of rendering. Yet, none of these appears to be so intimately a part of the group method that it cannot be successfully attacked if patience, intelligence, and energy are devoted to it.

In summary, group medical practice, particularly in combination with good personnel training, regional planning, and sound administration, offers an excellent method of improving the quality of medical care because of the many professional and economic incentives it affords which lead to medicine of a high quality. If thoughtful preparation, skillful administration, and a spirit sympathetic with patients' needs go into the development of group practice, we may expect to see it continue to spread and expand and to aid mightily toward the great objective of making the best in modern medical service accessible to all the American people.

American Public Health Association Resolutions

An Editorial from the J.A.M.A.

"On page 159 of this issue appear two resolutions adopted at the annual meeting, held in Boston in November 1948, of the American Public Health Association.

"One resolution deals with coöperation in the school health program and calls on the National Education Association and the American Medical Association to coöperate with the American Public Health Association and other groups in approving the principle of coöperative planning of health programs which involve children of school age. This resolution expresses the long declared and well implemented policy of the American Medical Association which began with the first meeting of the Association in 1847 and has been continuously a guiding principle in its policy. Since 1911, the American Medical Association and the National Education Association have coöperated through a Joint Committee on Health Problems in Education. Frequent symposiums on health of school children have been held at American Medical Association meetings. The Association has an active program of coöperation with educational agencies for better national health achieved through better health education and school health programs.

"The second resolution likewise coincides with the views of physicians often expressed, that the present system of allotting state aid to schools and school districts in part on the basis of average daily attendance is pernicious, conducive to attendance by children who are harming themselves and menacing others and a temptation to the violation of sound sanitary principles for the school in increasing or maintaining subsidies.

"The nation's leading public health organization does well to invite coöperation of the medical profession. Successful public health workers in official and voluntary agencies have long since learned that a coöperative medical profession is their strongest and best ally, but this idea has not seemed to permeate to certain leaders of the public health profession.

"The two resolutions calling on the American Medical Association for coöperation represent but two in the many areas of agreement between the associations. Others include the movement for county health unit coverage, the fight for universal pasteurization, the better training of public health personnel with a consequent improvement in salaries and tenure, the extension of the merit system in public health official agencies, the advance of medical research and the perennial battle against quackery. The organizations representing the medical profession and the public health profession should face the public united in their areas of agreement, especially since there is a large overlapping in membership."

J.A.M.A. 139, 3:157 (Jan. 15), 1949

Improving the Quality of Medical Care

Regionalization of Hospitals *

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EXPERIENCE has shown that small communities do not ordinarily have in their midst the trained persons and educational resources to enable hospital and medical practice to attain the development reached in large medical centers. Through a grant from the Commonwealth Fund, whose Division of Rural Hospitals is concerned with the building and developing of general hospitals in small communities, an experiment was set up to work out a method whereby the existing resources of small communities can be supplemented and integrated into a close working relationship among themselves and with a large community functioning as a regional medical center.

The regional hospital plan was set up as an experiment and a demonstration in a voluntary association of hospitals and their medical staffs, known as the Council of Rochester Regional Hospitals. The problems of medical care of patients in the hospital are given primary consideration during the first few years of the Council's organization. It is anticipated that the principles of regional administration developed in connection with hospitals will apply also to public health and to the broader aspects of medical care. The economic aspect of medical care as related to payment for service is entirely outside of the scope of the Council program.

The Council has a basic policy or "charter" which is set forth in its agreement with the Commonwealth Fund. The 5 points of basic policy are:

A. Financial aid and planning for rational distribution of adequate hospital facilities throughout the region.

B. The promulgation of approved procedures in all departments of hospital organization and operation.

C. The development of such joint administrative services as may be considered desirable and practicable.

D. The development of consultation services in clinical and laboratory medicine, and in institutional administration.

E. The organization and administration of a continuous educational program for physicians, dentists and hospital personnel with emphasis on postgraduate study.

To provide funds for the plan the Commonwealth Fund made available a sum of $275,000 per year for 5 years. The annual contribution from Rochester funds is $10,000. Of this total an annual sum of $200,000 is allocated to capital improvement of small community hospitals, and $85,000 to education, advisory services, and administration. The grant is assured for a period of 5 years. At the end of that time, it is provided that the contract may be renewed with the expectation that the members of the Council, during the second period, will gradually assume a large part of the cost of their organization and the services it renders.

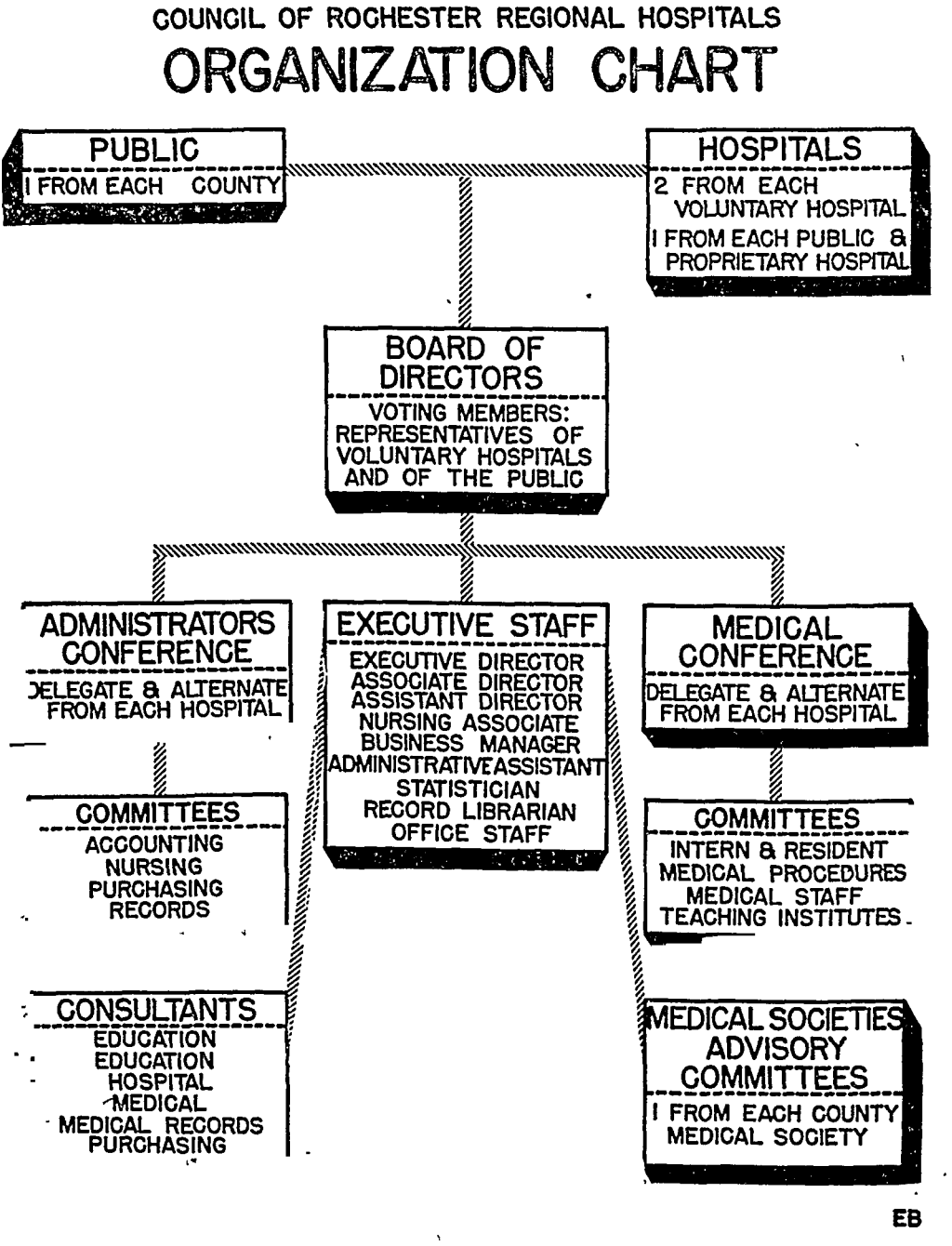
The region includes 11 counties in the trading area of Rochester. It contains a medical school, 6 urban voluntary hospitals, and 26 general hospitals

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

outside of Rochester. Full membership is limited to community hospitals owned and operated by unofficial, nonprofit associations and providing general care for acute illness. Associate membership with nonvoting representation on the governing and advisory bodies and with all benefits except grants for capital improvement is offered to governmental hospitals and to hospitals operated for profit.

ORGANIZATION

A Board of Directors, mostly laymen, guides the affairs and makes the policies for the Council. It is composed of two delegates from the governing board of each member hospital, and one



lay public representative from each county who has no direct connection with any hospital.

Two delegate bodies advise the Board of Directors, namely the Administrator's Conference and the Medical Conference. The Administrator's Conference, composed of the hospital administrators and their alternates, serves as a forum for the exchange of information on hospital administration. It also studies methods to solve common problems, and recommends policies and projects for the consideration of the board. The Medical Conference has a similar purpose as related to medical practice and problems centering around hospitals. It is composed of one physician and one alternate physician elected by the medical staff of each member hospital, and a representative of each county medical society.

The executive staff is made up of the executive director, a physician who serves on a part-time basis, a full-time associate director, who is also a physician, an administrative assistant, a business manager, a director of nurses (part-time), a public relations director, and secretarial assistants. The executive staff is assisted by consultants in hospital administration, medical education, public health, nursing services, accounting, and purchasing services.

In order to obtain broad interest in the regional medical experiment, several committees emanating from the Board of Directors, Administrator's Conference, and Medical Conference are actively engaged in promoting studies and improvements in their respective fields. These committees initiate their own activities and are assisted in their work by members of the executive staff. The numerous meetings conducted by the committees and the larger conferences have brought the men and women of the rural hospitals into friendly and helpful relationships with medical and lay members of the urban hospitals. This accomplishment has contributed immeasurably to the success of the regional experiment.

HOSPITAL SURVEY

Before offering the member hospitals services concerned with the administration and with professional activities, hospital surveys were conducted by the executive staff. These were primarily concerned with the operation of the hospital, organization, and activities of the governing board and medical staff, and thorough investigation of the functioning of the hospital, department by department. Such surveys were made at the request of the governing board and findings and recommendations were reported only to the board of the hospital concerned. The completed surveys revealed the deficiencies that existed in each member hospital and directed the program that was outlined to improve the services that might assure better medical care.

These surveys revealed not only the inadequacies of the physical plant and certain types of equipment, but it brought to light administrative and professional practices in a number of instances that were not in accord with accepted hospital operation. For example, it was found that medical records, which should be a source of information of the quality of medical care received in the hospital, in many of the member hospitals were inadequate or not used because of: failure of physicians to complete medical records accurately, completely, and within a reasonable length of time; lack of medical record librarians trained to keep, classify and index records properly, and to develop useful statistics from them; and widely varying record systems and nomenclatures. A statistical study of deaths recorded in the hospitals from various causes showed that there was considerable difference in the death rates for the same condition in neighbor-

ing hospitals. Where this occurred over a 3 year period it could be assumed that the professional care, medical and nursing, could well have played a part.

Laboratory and x-ray facilities likewise were not equally satisfactory. These variations were generally due to lack of trained personnel or in some instances to inadequate equipment. Staff organization was given little or no consideration in a few hospitals while in others it was operating in a most successful manner. The information gained from the surveys was transmitted to the directors and staff of each hospital with the hope that some effort would be made to rectify these deficiencies.

DIFFICULTIES ENCOUNTERED

It should be pointed out that any effort to improve medical care in which a central administrative group is involved arouses some suspicion on the part of its constituent members. This was true not only for some of the physicians actively interested in area hospitals, but for some of the hospital administrators. A feeling of insecurity was evident and a fear that local autonomy would be threatened was voiced. As the voluntary, rather than compulsory participation, became thoroughly understood, confidence in the Council and in its objectives was gradually established. Today, after two years of operation, all fear of domination and control has been dispelled and almost unanimous coöperation is the outstanding feature of the Hospital Council's activities.

PLAN OF PROCEDURE — HOSPITAL ADMINISTRATION

Surveys of hospitals and evaluation of existing services provided the blueprints for action that might assist in improving the medical care given in area hospitals. It was evident to those charged with the execution of the experiment that no phase of hospital operation could be overlooked and that all personnel, including hospital boards, administrators, professional staff, and others should be reached in a program to stimulate them to greater awareness of their responsibilities. Simultaneously, efforts were made to reach all groups associated with the operation of the hospital.

Hospital administration in the small hospital varies greatly, depending upon the competency of the administrator. Early in the regional experiment a college credit course in hospital administration was given at the University of Rochester, in which prominent hospital administrators participated. A second, more advanced course in hospital administration was given a year later at the request of those who took the first course. Assistance was given to area hospitals in various administrative departments such as accounting, hospital records, reports, statistics, purchasing, personnel service, nursing and other related services. Employees of the small hospitals were given fellowships for specialized training or consultants were sent to the small hospitals from the large urban hospitals. Institutes were conducted in Rochester for accountants and bookkeepers. An institute for Medical Record Librarians was highly successful and paved the way for a marked improvement in the medical records of area hospitals. Funds available for educational purposes were used in providing fellowships for selected employees in institutions outside of the Rochester area. Significant changes and improvements were brought about in the important field of hospital administration.

PROFESSIONAL ACTIVITIES

Among the first activities undertaken by the medical group was the appointment of a committee of doctors to set up a manual of medical procedures to

guide the individual physician in the performance of his routine duties, both in the interest of the patient's welfare and for the professional reputation of the hospital. This involved a consideration of the minimum qualifications for granting hospital privileges in such fields as surgery, obstetrics, medicine, radiology, and anesthesiology. These model policies are not obligatory but are stimulating staff members to elevate their standards.

To offer the doctor practising in the rural areas assistance from the medical center presents some difficulties. In some instances physicians resent the inference that they need instruction or guidance in their daily problems, while in other situations the fear exists that physicians associated with urban hospitals coming to the small hospital will threaten the relationship that exists between physician and patient. Nevertheless, it is gratifying that the medical staffs of all of the member hospitals invited professional educational assistance from the hospitals in the medical center.

In any experiment conducted to improve the character of medical care in an area it is essential to have reasonably accurate information on the death rates where the kind of care rendered may have played a part. Such a study was prepared by tabulating the deaths in the various hospital areas in the three years prior to the regional experiment. Ultimately, similar studies will be made on the death rates in the same areas to determine what, if any, effect the new educational facilities may have exerted on the medical practice of each community. Information made available to each hospital staff on such diseases as appendicitis, herniotomy, diabetes, prematurity, accidents, etc., brought directly to the attention of each physician how his hospital area compares with comparable institutions in the management of the common medical and surgical procedures.

Obviously the hospital area with a death rate charged to appendicitis that is twice as high as that of a neighboring hospital area should be stimulated to have its staff investigate the diagnostic and surgical procedures practised in that hospital area. Similarly the hospital area in which the death rate of infants under one year of age is twice as high as in a neighboring area, invites a thorough analysis of hospital facilities for the care of the new-born and especially the organization for the care and follow-up of the premature baby. Making these indisputable data available to each hospital staff points out the desirability of improving certain professional services in the hospital and in the community.

The establishment of clinical conferences in the small hospitals was gratefully accepted. Through a medical committee of the Regional Council, monthly staff conferences were arranged in each of the rural hospitals. Eminent physicians in all fields of practice were sent from the medical center to the small hospitals. The visiting clinician spends half a day with the small hospital staff to discuss a number of problem cases and then makes ward rounds with some or all of the staff members. The success of these clinical conferences and the good will established between the small and large hospitals has more than justified this procedure.

The coöperation of physicians with teaching ability has been most helpful to the program. Such men are very willing to participate, although distances of 100 miles or more are often involved and travel conditions throughout the region during the winter months are far from pleasant.

POSTGRADUATE COURSES

During the early part of the Regional Hospital Council's existence, staff discussions centered about plans for accelerating postgraduate medical educational

opportunities. The program of clinical conferences was a definite success. Seeking other means to meet the needs of physicians outside of the city, the staff turned to "refresher" courses. Inasmuch as the busy doctor in the small town or in the country finds it difficult to leave his practice for long periods, short courses of one week's duration were provided in the larger hospitals and at the Medical School in Rochester. Competent instruction was provided and material of immediate value to general practitioners was presented. The courses were designed to combine clinical and didactic teaching, with an opportunity to discuss problems with persons well qualified in the field.

The content of the courses was to be centered around common problems and procedures in diagnosis and treatment. Thus far, 6 courses have been conducted, with an average attendance of 20 physicians, most of whom came from the hospitals outside of Rochester. The courses have served not only as an educational contribution to those who attended, but strengthened the friendly relations between the physicians living in the smaller communities and the physicians, many of whom are specialists, identified with the hospitals in the medical center. This type of postgraduate teaching will be continued and perhaps extended into new fields.

INTERN AND RESIDENT ROTATION

None of the area hospitals except the large institutions had a resident staff. Because a resident staff is of great and obvious value to the hospital, the Regional Council undertook a program of rotation of a series of interns and residents from the large city hospitals to the smaller hospitals for periods of from 2 to 3 months. This program was approved by the Council on Medical Education and Hospitals of the American Medical Association. The rotation of interns or residents has been in progress for 2 years in 1 hospital and for a shorter period in 3 other hospitals. This rotation of house staff from the parent hospital in the medical center to the small hospitals of about 100 beds has proved beneficial to the area hospital. Difficulties naturally arise on the part of both parent and recipient institution but these obstacles are gradually being overcome. The experience gained by the intern or resident in the small hospital has proved valuable. A better understanding of the problems of the rural area is obtained by the young doctor, and the presence of a resident physician in a small hospital stimulates the visiting staff to a keener interest in patient care. Improvement in hospital records is apparent, autopsies have increased and routine staff rounds have been instituted. The parent hospital supervises the training of the resident while in the small hospital, and a committee of the rural hospital is held responsible for the proper use of the rotating intern or resident. Extension of this program to more rural hospitals and greater participation on the part of the small hospital staffs should ultimately lead to better hospital practices.

NURSING SERVICES

In the field of nursing the Council has a number of direct interests. Its nursing director has concerned herself primarily with the quality of nursing care in the region, while other staff members, through assistance in student nurse recruitment campaigns, advisory services in connection with the training of auxiliary workers, and studies of nursing hours, have been active in increasing the quantity of nursing care.

The Council has established 3 projects in the field of postgraduate education; postgraduate fellowships for members of the nursing staffs of member hospitals; regionalized nurses' meetings of a professional nature; and expansion of the Department of Nursing Education

at the University of Rochester. In addition to the direct services which have been made available to the nursing divisions of the member hospitals, studies are being conducted on patterns of nursing care in which subsidiary workers assume a much more important role.

CONSULTATION SERVICES

In the fields of radiology, pathology, and anesthesiology, not all of the small hospitals were properly staffed. Where possible, consulting services emanating from the medical center are offered in these fields. Significant assistance has been provided by the Council through consulting service in developing radiology departments, determining needs, and advising as to equipment needed. In one hospital, where this was done in 1947, a saving of $6,000 was realized over the amount that the hospital had planned to pay for equipment. The saving resulted from definite recommendations as to equipment required to meet the hospital's needs, and the elimination of unnecessary items which the hospital had planned to buy.

JOINT PURCHASING SERVICE

From its beginning, the Council sensed that organization of hospitals into a group would make possible joint buying at substantial savings. The subject of joint purchasing was studied thoroughly by the Purchasing Committee of the Administrator's Conference, and after a number of surveys and adequate discussion, the Administrator's Conference and the Board decided to embark on a program of this kind. To facilitate this program, member hospitals agreed on specifications and standards for certain items such as linens, and planned that a single order representing the needs of all participating hospitals for a 6 or 12 month period be placed at one time. In this connection it is hoped that inventory and budgetary practices in the smaller hospitals will be improved. Under the present system there is no compulsion to purchase through the Council. Hospitals may make such purchases as they choose through the Council and others wherever they like. The Council acts simply as a central purchasing office, receiving orders from its members and turning them over to suppliers for shipment directly to the hospitals. The Council pays cash as bills come in, in turn billing the hospital receiving the goods. The participating hospitals can make substantial savings by utilization of this service.

REGIONAL BLOOD BANK

In some of the meetings of the medical conference, composed of staff representatives of each of the member hospitals, attention was called to the fact that blood to be used for transfusions was not always available and rare types of blood were difficult to obtain when needed. Consequently blood therapy was not utilized in indicated cases as frequently as in larger hospitals where blood banks could be maintained. In cooperation with the large Rochester hospitals already operating separate blood banks it was decided to develop a regional blood bank to serve all of the hospitals in the Rochester Region. Utilizing the studies and plans made by the staff representatives of the member hospitals and with the support of the 11 county medical societies, a plan was finally evolved for the operation of such a bank. At this stage the American Red Cross expressed interest in establishing regional blood banks in various parts of the country and considered the Rochester region an excellent place in which to initiate its program. The Red Cross accepted full administrative and financial responsibility for this regional blood program and in a short time brought to reality what had been a hope on the part of physicians and hospital people throughout the Council's region for some time. For about a year this regional

bank has been operating in a most satisfactory manner and thereby offers patients, treated in any of the area hospitals, adequate amounts of blood wherever indicated. This service has been greatly appreciated, especially by the communities never before served in this way.

PLACEMENT OF PHYSICIANS

With full knowledge of the personnel needs in the region, it has been possible to place young physicians in areas where well trained physicians are urgently required. As the experiment develops and the advantages of rural practice under more favorable hospital conditions become known to young doctors, it is hoped that the placement of physicians will be of assistance in the needy areas.

Insufficient time has elapsed to evaluate the efforts to assist the rural physicians in their home and hospital practice. It is quite clear to the executive staff of the Council that the practising physician in many small communities has rendered excellent medical care, in and out of the hospital. The advantages and facilities are generally inferior to those of the urban area and difficulties arise which cannot be easily overcome. Some of these deficiencies can be corrected by the small hospitals themselves, others can be solved by closer association with the medical center.

The urban hospitals and the medical school have the facilities and the personnel to assist the small institutions within a certain area if they are willing to make them available. It is equally important for the small hospitals to seek these services. If an effective voluntary relationship can be established it will not only assure better small hospital functioning but also will improve medical care in the local community.

New Mental Health Project in Wellesley, Mass.

It has been announced that, under the combined auspices of Harvard School of Public Health, Harvard Medical School, Harvard Department of Social Relations, Massachusetts General Hospital, and the Wellesley Community Mental Health Committee, a mental hygiene combined service-research organization has been established in Wellesley with funds from the Grant Foundation for a five year period. Dr. Erich Lindemann, Lecturer on Mental Health in the Harvard Department of Public Health Practice, will direct the program and supervise two field teams, one a service team composed of two psychiatrists, a social worker and a clinical psychologist, and a research team composed of a social scientist and a social psychologist. The Wellesley project is being initiated as a community health service, accompanied by a prolonged study of the effect of social relationships in the community, with the family as the study unit.

Improving the Quality of Medical Care

Sound Principles of Administration *

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IN general, the principles of administration relating to quality of care are equally applicable to any medical care program, whether governmental or nongovernmental, tax supported, or supported by prepayment contributions.

The quality of medical care is primarily of importance to the recipients of services—the patients. It is in their interests I speak, and it is their wishes I am trying to express, rather than considering principles of administration in the abstract.

In order to emphasize the importance of the individuals to be served, I will present some of the principles of administration which I believe most individuals would desire in any medical care program.

A. THE SCOPE OF THE PLAN

1. I would want the plan to provide all professional and auxiliary services, hospital, and convalescent home care that I might need and that could be made available. I would not want anything to do with a plan that is concerned only with assuring payment to surgeons for their operations or providing only fragments of the services required.

B. THE PERSONNEL

1. I would want the administrative staff and all professional personnel of my medical care plan to be concerned always with the promotion of positive health, the prevention of illness and disability, as well as the treatment of disease and rehabilitation, for each and every one of us covered by the plan.

2. I would wish to have my medical care plan provide, or pay, for services rendered only by professional personnel recognized as competent in their respective fields. I would hope that my medical care plan would prevent me, if possible, from seeking professional help from individuals who are not competent to provide it.

3. I would wish that those persons who set standards for professional personnel would consider it important that the physicians be as much concerned with environmental and social causes of illness as with their biological and other causes.

4. I would like to have my medical care plan provide physicians and other personnel who are as interested in the long-time treatment of my child with cerebral palsy as they are interested in the dramatic response I made to treatment with a new antibiotic.

5. I would wish the physicians to be selected from among those who would *treat me at all times as an individual*, giving me as much personal attention as they would wish for a member of their own family. I would not like to be "Case No. 329," and be given a brush-off as one of 50 patients being seen that morning.

6. I would want to see my physician *in an attractive office or clinic*, where

* Presented before the Medical Care Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

there are comfortable chairs, because I dislike basements of courthouses and hard benches.

7. I would like my office visits to be by appointment, for I dislike waiting for hours on a hard bench *or* in a comfortable chair.

8. I would like to be able to change my physician if I became dissatisfied with him or if he thought I would do better under the care of another physician.

9. I would wish my medical care plan to afford its professional personnel, wherever feasible, opportunities for working in groups—with easily accessible diagnostic equipment they may need—in order that they may easily consult with each other, and in order that I may not need to go from one place to another for a series of consultations or laboratory tests.

10. I would want to know how, when, and where I could get medical care in an emergency, whether such care is required at home, office, or hospital.

11. And, since what is good medical care today may not be good enough a few years from now, I would wish to have the personnel in my medical care plan have regular opportunities for postgraduate training and to be continually considering ways and means of bringing to us—the patients—the most recently acquired knowledge in this great and complex field of human endeavor.

C. THE FACILITIES

1. I would wish to have my hospital care only in institutions which meet national standards of performance, and my medical care plan should not provide care in hospitals which do not meet such standards.

D. THE ADMINISTRATIVE MACHINERY

1. I would not want to be told at any time that I was not eligible for care because of the place of my legal residence, or because my skin was not white, or because my income was up or down during a given year.

2. I would not wish to have red tape, or tape of any other color, delay my obtaining any services I need under my medical care plan.

3. I would want my taxes or prepayment contribution to cover all costs of all services provided, and I would not want the physicians or hospitals to ask me for more money because my case was unusual, or because they did not think the plan paid them enough.

4. I would want the method of payment to physicians and hospitals to be of a type that would prevent the possibility of financial considerations influencing the clinical decisions of the physicians or hospitals.

5. I would want the administrator of the plan and his staff to be fully competent to develop the best medical care plan possible, and to improve it year by year on the basis of experience. I would want this staff to be selected on the basis of merit alone, to serve only the best interests of the community and not the selfish interests of any special group.

6. I would want a group representing those of us served by the plan, and those providing services, to be given ample opportunity, at regular intervals, to confer with the administrator and his staff and to express our viewpoints fully.

7. I would like to have an impartial appeal board established to hear my complaints about the plan, or complaints of the professional staff providing services.

8. And last, I would like to have the amounts of money paid the administrator and his staff, and the professional personnel, high enough to attract and hold in rural or urban areas the best people available, and to have working conditions and other factors conducive to their deriving satisfaction from their work. I would not want bargain counter medical care.

I have stated no new principles. We

have all talked about one or more of them on many occasions. It may be new to have them presented together, and from the viewpoint of the patient. At this time, when many public and voluntary medical care programs are developing in this country, it might be of interest to the administrator and the public to evaluate each program on the basis of these principles.

Blackwell Citations to 12 Women

On January 23, 12 women distinguished in medicine received Elizabeth Blackwell centennial citations from Hobart and William Smith Colleges, Geneva, N. Y. This event celebrated the 100th anniversary of the graduation from the medical department of what is now Hobart College, of Elizabeth Blackwell, the first woman in the world to receive the M.D. degree, and the founder of the New York Infirmary for Women and Children for the training of women physicians.

The women receiving the citations were nominated by the deans of American and Canadian medical schools, by several professional bodies, and by other medical leaders. They are:

Gerty T. Cori, Research Associate, Washington University School of Medicine, St. Louis, Mo., third woman to receive Nobel Prize in Science. For work in biochemistry and pharmacology.

Margaret D. Craighill, Chief of Service in charge of medical care of women veterans, Winter Veterans Administration Hospital (Menninger Psychiatric Clinic), Topeka, Kan. For military medicine.

Martha May Eliot, Associate Chief, U. S. Children's Bureau. First woman president of the American Public Health Association. For public health.

Therese Bertrand Fontaine, Paris, France. First French woman medecin des hopitaux.

Alice Hamilton, Consultant on industrial toxicology for U. S. Department of Labor and U. S. Public Health Service. First woman appointed to medical faculty at Harvard. For industrial medicine.

Elise S. L'Esperance, assistant professor, Department of Preventive Medicine, Cornell University Medical College; President, American Medical Women's Association. First woman to hold rank of Assistant Professor in Cornell University Medical College. Planned and established first Cancer Prevention Clinic in 1937. For work in cancer prevention and pathology and leadership of women in medicine.

Helen Marion Macpherson Mackay, F.R.C.P., London, England. First woman to be elected to the Fellowship of the Royal College of Physicians. An internationally known pediatrician.

Helen MacMurchy, C.B.E., Toronto, Canada. Worked with Sir William Osler at Johns Hopkins in fields of child welfare and public health. Chief of Division of Child Welfare, Dominion of Canada Department of Health, 1920–1934. For child welfare and public health.

Helen V. McLean. Developed Institute for Psychoanalysis in Chicago, and contributed greatly to understanding of psychiatric problems relating to pressure groups, especially Negroes. For psychiatry.

Florence R. Sabin. Had distinguished career at Johns Hopkins and Rockefeller Institute. Since so-called "retirement" conducting campaign for improvement of public health in Colorado. For medical research.

Helen B. Taussig, Associate Professor of Pediatrics, Johns Hopkins. Member of the famed Taussig-Blalock "blue baby" team of doctors. For clinical medical research.

Priscilla White, Physician, New England Deaconess Hospital and Faulkner Hospital, Boston, and instructor pediatrics, Tufts College Medical School. Has carried on extensive work in field of diabetes, giving special attention to care of diabetic children, diabetic mothers, and inheritance of diabetes. For work in diabetes.

Drs. Eliot, Hamilton, and Sabin have been active in the affairs of the A.P.H.A. Both Dr. Eliot and Dr. Hamilton have received Lasker Awards, the former in 1948, the latter in 1947. Dr. Sabin was granted honorary fellowship in 1948.

Studies of the Combined Action of Antibiotics and Sulfonamides*

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RECENT advances in the chemotherapy of disease have proceeded along two main lines of endeavor. An intensive search is being made to discover new antibiotic agents, and numerous studies are under way to explore the possibilities of combining antibiotic agents with each other and with various sulfonamides in order to provide more effective remedies. In addition to penicillin and streptomycin, extensive clinical investigations are being conducted with polymyxin B. bacitracin, aureomycin, and chloromycetin. Anticipating that eventually some of these antibiotics may be used in combinations, and with other chemotherapeutic agents, the present study was initiated to determine what combinations might be effective. Combinations of these agents might have three possible results: the effect of the mixture may be simply additive; it may be synergistic, that is, the mixture would have a greater effect than the sum of the effects of the active ingredients; and finally, the reverse could occur and the mixture produce a lesser effect than the sum of the effects of the active constituents. The simultaneous use of more than one therapeutic agent in combating infections is designed to bring about a more rapid and effective eradication of the causative agents, to prevent the development of resistant variants, and possibly to extend the range of antibacterial activity. More than one chemotherapeutic agent might be used also in infections caused by more than one organism.

Synergistic or additive action of drug mixtures has been reported by Foley and Lee (1948) (gramicidin and penicillin); Thomas and Hayes (1947) (penicillin and sulfathiazole); Stewart (1947) (penicillin-sulfonamide); and Kolmer (1948) (penicillin-streptomycin-sulfonamides-arsenicals and bismuth compounds). The present work deals with the action of various mixtures containing penicillin, streptomycin, polymyxin, bacitracin, aureomycin, chloromycetin, sulfathiazole, sulfadiazine and sulfamerazine on *Salmonella typhosa, in vitro* and *in vivo*.

METHODS

In vitro—Dilutions of the antibiotics and the sodium salts of the sulfonamides tested were made in distilled water to the desired concentration. Two ml. quantities were placed in test tubes and 8 ml. of a broth (penassay broth, Difco) dilution of *S. typhosa* containing from 200,000 to 500,000 organisms per ml. added. The tubes were incubated at 37° C. and colony counts made at 2 hours and 5 hours.

In vivo—White mice were injected intra-abdominally with 0.6 ml. of a 6 hour culture of the same strain of *S. typhosa* used above, and immediately thereafter received by the same route

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

a single injection of the drug or drug combination under test. Twenty mice were used for each concentration of each drug or mixture, and deaths recorded at the end of 24 and 48 hours. When significant results were obtained, from 50 to 300 mice were used for retesting the effective mixture in order to obtain statistically significant data.

EXPERIMENTAL

Each individual antibiotic or sulfonamide used was first tested over a wide range of concentrations, both *in vivo* and *in vitro,* to determine its individual effects. Combinations were then prepared containing the individual drugs in a concentration which, when used singly, had a slight but definite protective or inhibitive effect. This is illustrated by an example in Table 1 for penicillin *in vitro.*

The value of 1.25 u./ml. of penicillin was selected for the *in vitro* experiments and various concentrations of the other drugs added for test purposes. The concentrations of the various drugs used in the *in vivo* experiments are given in Table 6.

In Table 2 the drug mixture and concentrations showing synergism *in vitro* are indicated by a + sign. As was expected, polymyxin and streptomycin, both highly active against Gram-negative bacteria, showed synergistic activity with the largest number of the other drugs. Penicillin fell next in line, showing a synergistic effect with three other antibiotics. Aureomycin, which is active against certain Gram-negative bacteria, showed synergism with penicillin and polymyxin. The only antibiotic which showed any synergistic effect with the sulfonamides tested was streptomycin, which was active when mixed with sulfadiazine and somewhat less so when combined with sulfathiazole. The degree of synergism observed in these experiments, using *S. typhosa* as the test organism, did not indicate any marked advantage in the use of the various effective combinations over that which was obtained by a simple increase in amount of the more active drug in the mixture.

TABLE 1

Effect of Penicillin on the Growth of S. typhosa in vitro

Concentration of Penicillin u./ml.	Log of Numbers of Organisms	
	2 hours	5 hours
0	6.3	8.25
1.25	5.34	5.55
2.5	4.7	4.05
5.0	4.08	1.45

TABLE 2

In vitro Effect of Various Drug Combinations on S. Typhosa

Drug	Concentration	Concentration of Drug: 0.06 Mcg. Aureomycin	2 Units Bacitracin	0.05 Mcg. Chloromycetin	1.25 Units Penicillin	0.03 Mcg. Polymyxin	0.3 Mcg. Streptomycin	500 Mcg Sulfadiazine	250 Mcg. Sulfamerazine	500 Mcg. Sulfathiazole
Aureomycin	0.06 mcg.	..	0	0	+	++	0	0	0	0
Bacitracin	2 units	0	..	0	0	++	0	0	0	0
Chloromycetin	0.05 mcg.	0	0	..	0	0	0	0	0	0
Penicillin	1.25 u.	+	0	0	..	+	++	0	0	0
Polymyxin	0.03 mcg.	+	+	0	++	..	++	0	0	0
Streptomycin	0.3 mcg.	0	0	0	+	+	..	+	0	*
Sulfadiazine	500 mcg.	0	0	0	—	0	+	..	..	..
Sulfamerazine	250 mcg.	0	0	0	0	0	0	..	..	..
Sulfathiazole	500 mcg.	0	0	0	0	0	*	..	..	..

+ = Synergism
0 = Additive
— = Less than additive
* = 0 at 500 mcg./ml., + at 1000 mcg./ml.

In the *in vivo* studies nine drugs were utilized: penicillin, streptomycin, polymyxin, aureomycin, chloromycetin, bacitracin, sulfamerazine, sulfadiazine, and sulfathiazole. All of these drugs were tested for their protective effect in mice in several concentrations in order to ascertain that dose of drug which gave a minimal protective effect. The results obtained are given in Table 3.

From the data in this table, suitable drug concentrations were selected and then tested in combination with the other drugs listed. Certain results contained in this table should be noted. The approximate CD_{50} of the drugs tabulated are: penicillin 250 u. (150 mcg); streptomycin 3 mcg.; polymyxin 2 mcg.; aureomycin 40–50 mcg.; and chloromycetin 1,000 mcg. It was not possible to determine a CD_{50} for the sulfonamides because of their toxicity. However, since the amounts of the drugs utilized in the combined therapy were those which gave only slight but definite protection, it was not necessary to obtain a CD_{50} for the sulfonamides. In Table 4 there is given an example of the manner in which the observed combined action is expressed. A negative sign indicates an antagonistic action; a positive sign a synergistic action while the numeral simply indicates the magnitude of these effects. If the magnitude of the differences was not great the effect was considered merely additive.

TABLE 3

Protective Effect of Various Drug Concentrations on S. Typhosa Infection in Mice

Antibacterial Agent	*Amount*	*Per cent Protected*
Penicillin	10 units	0
	20 "	2
	25 "	7
	50 "	8
	100 "	9
	200 "	16
	250 "	50
	400 "	50
	500 "	77
	1,000 "	84
Streptomycin	0.5 mcg.	0
	1 "	11
	2 "	33
	3 "	52
	4 "	86
	5 "	73
	10 "	80
	50 "	100
Polymyxin	1 mcg.	8
	2 "	59
	5 "	71
	10 "	95
	20 "	100
Aureomycin	10 mcg.	13
	20 "	13
	25 "	13
	40 "	32
	50 "	65
Chloromycetin	0.1 mg.	10
	0.5 "	28
	1.0 "	47
Bacitracin — Ineffective up to toxic concentrations		
Sulfamerazine	50 mcg.	40
	125 "	30
	250 "	15
Sulfathiazole	50 mcg.	30
	100 "	0
Sulfadiazine	50 mcg.	30
	100 "	10

Thus it will be noted that 20 units of penicillin alone protected only 2 per cent of the animals while 2 mcg. of streptomycin protected 33 per cent for an expected additive protection of 35 per cent.

TABLE 4

Example Showing Method of Expressing in vivo Results

Action	*Antibacterial Agent*	*Conc.*	*Per cent Protected*	*Expected Additive Action*	*Observed Combined Action*
Antagonistic	Penicillin	20 u.	2		
	Streptomycin	2 mcg.	33		
	Combined		5	35	—30
Additive	Penicillin	100 u.	9		
	Streptomycin	10 mcg.	80		
	Combined		90	89	+ 1
Synergistic	Penicillin	200 u.	16		
	Streptomycin	2 mcg.	33		
	Combined		88	49	+39

When these two drugs were given at these concentrations simultaneously, only 5 per cent of the mice were protected. This combination of penicillin and streptomycin is therefore antagonistic and the magnitude of this antagonism is expressed by the numeral —30 obtained by subtracting the additive from the combined effects of these two drugs. In Table 5 is given the

TABLE 5

Expected and Observed Protective Action of Various Drug Combinations

		Expected Additive Action	*Observed Protection*	*Observed Combined Action*
Penicillin plus Streptomycin				
50 u.	1 mcg.	35	5	—30
50	2	41	25	—17
50	3	60	55	— 5
100	1	20	28	+ 8
100	3	61	80	+19
200	1	27	65	+38
200	2	49	88	+39
200	5	89	95	+ 6
Penicillin plus Aureomycin				
50 u.	10 mcg.	21	5	—16
50	25	21	20	— 1
50	50	73	75	+ 2
100	10	22	5	—17
100	50	74	85	+ 9
200	50	81	85	+ 4
Penicillin plus Polymyxin				
100 u.	1 mcg.	15	5	—10
100	2	65	35	—20
200	1	22	10	—12
200	2	72	30	—42
Penicillin plus Sulfadiazine				
50 u.	50 mcg.	38	30	— 8
100	50	39	35	— 4
200	50	46	75	+29
Streptomycin plus Aureomycin				
1 mcg.	10 mcg.	24	20	— 4
1	20	24	15	— 9
1	40	44	43	— 1
1	50	76	75	— 1
Streptomycin plus Sulfadiazine				
0.5 mcg.	50 mcg.	30	60	+30
1.0	50	41	60	+19
2.0	50	63	85	+22
Sulfadiazine plus Aureomycin				
50 mcg.	10 mcg.	43	35	— 8
50	40	64	50	—14
Sulfathiazole — 50 mcg. plus:				
Bacitracin	300 u.	35	20	—15
Polymyxin	1 mcg.	38	45	+ 7
	2 mcg.	89	75	—14
Penicillin	100 u.	39	40	+ 1
	200 u.	46	65	+19
Streptomycin	1 mcg.	41	75	+34
	2 mcg.	63	85	+22
Aureomycin	10 mcg.	43	40	— 3
	40 mcg.	62	75	+13
Chloromycetin	0.5 mg.	58	80	+22
Sulfamerazine — 50 mcg. Plus:				
Polymyxin	1 mcg.	48	50	+ 2
	2 mcg.	99	85	—14
Streptomicin	1 mcg.	51	80	+29
Penicillin	50 units	48	85	+37
	100 units	49	90	+41
Chloromycetin	0.25 mg.	50	85	+35
	0.50 mg.	68	90	+22

additive effect calculated from the protection afforded by the drugs injected separately and that observed following the administration of the mixtures. The last column is simply the difference between the two.

The penicillin-streptomycin mixture showing the greatest degree of synergism was obtained by combining 200 u. of penicillin with 1 or 2 mcg. of streptomycin. This combination markedly increased the survival rate of the mice injected. The experiments using combinations of penicillin and streptomycin illustrate a point which has been frequently observed during the course of this work, namely, that in order to demonstrate a significant synergistic effect it is necessary to employ proper concentrations of the drugs. Significant synergism can only be demonstrated within certain narrow limits of drug concentrations. The combinations of penicillin and aureomycin utilized did not show any significant synergism. Penicillin and sulfadiazine produced a synergistic effect when 200 u. of penicillin and 50 mcg. of sulfadiazine were combined. Penicillin and polymyxin showed a marked antagonistic action especially when utilized in concentrations of 200 u. and 2 mcg. respectively. Assays showed that no destruction of either drug occurred before the mixture was injected. This marked antagonism also occurred with other drug-polymyxin mixtures which are not recorded in the table. Streptomycin-aureomycin combinations in the doses utilized produced only what were considered additive effects. Streptomycin and sulfadiazine showed synergism at all concentrations tested. Sulfathiazole and sulfamerazine produced a synergistic effect when combined with penicillin, streptomycin, or chloromycetin, while only an additive effect was obtained with the other antibiotics tested in combination with these sulfonamides.

It is apparent by inspection of Tables 2 and 5 that certain drug combinations often give different results when tested by the two methods used. Thus, both penicillin and chloromycetin combined with two sulfonamides tested by the mouse protection method showed synergism, while the *in vitro* test failed to demonstrate anything more than an additive action. Similarly, mixtures of penicillin and polymyxin, or streptomycin and polymyxin, show antagonism only when tested *in vivo,* while a synergistic effect was demonstrated *in vitro.* The results obtained with the various chemotherapeutic mixtures utilizing *S. typhosa* as a test organism *in vitro* and *in vivo* illustrate the difficulties involved in attempting to utilize an *in vitro* method as a sole basis for clinical trial.

SUMMARY

1. Combinations of aureomycin, bacitracin, chloromycetin, penicillin, polymxin, streptomycin, sulfadiazine, sulfamerazine, and sulfathiazole were tested for possible synergistic action utilizing *S. typhosa* as a test organism, *in vitro* and *in vivo.*

2. Of the combinations tested *in vitro,* polymyxin showed a synergistic effect with aureomycin, bacitracin, penicillin, and streptomycin; penicillin with aureomycin and streptomycin; and streptomycin with sulfadiazine and sulfathiazole.

3. Of the combinations tested *in vivo,* penicillin produced a synergistic effect with streptomycin, sulfadiazine, aureomycin, sulfamerazine, and sulfathiazole; streptomycin with sulfadiazine, sulfamerazine, and sulfathiazole; and chloromycetin with sulfamerazine and sulfathiazole.

4. Although a synergistic action was demonstrable with a number of combinations of the chemotherapeutic agents tested, in only 50 per cent of these combinations did the *in vitro* method correlate with *in vivo* tests.

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Importance of Antigenic Composition of Influenza Virus Vaccine in Protecting against the Natural Disease*†

Observations during the Winter of 1947–1948

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AS is now well known, convincing evidence was gathered in 1943–1944,[1–3] and again in 1945–1946 [4, 5] indicating that susceptibility to epidemic influenza could be modified by subcutaneous vaccination. The procedure found to be effective on those two occasions was repeated again in the winter of 1946–1947.[6] This time, however, it was without demonstrable effect.

The failure of vaccination to influence susceptibility in the spring of 1947 was readily explained by the finding that the virus then in circulation was significantly different antigenically from the virus-antigens included in the vaccine.[6–11] It is of special interest, too, that the 1947 virus, although similar to a strain isolated in Australia in the fall of 1946,[12] differed from others that had been isolated in previous outbreaks.

These experiences emphasized the desirability of continuing the field studies of vaccination against influenza for evaluation in future epidemics. The matter was discussed at a meeting of a committee of the Army Epidemiological Board and of representatives of the Office of the Surgeon General of the Army. The members of the committee were Dr. Colin M. MacLeod, Dr. Thomas Francis, Jr., Dr. John H. Dingle, Dr. Joseph E. Smadel, and Dr. Jonas E. Salk. The representatives of the Office of the Surgeon General were Col. Tom F. Whayne, Lt. Col. Frank L. Bauer, and Lt. Col. Arthur Long. At this meeting, plans were inaugurated for carrying out field studies in the Army, under the auspices of the Commission on Influenza. The observations reported here comprise the results of the first year's effort in a program that will be continued over a number of years, and until the required information is obtained.

PLAN OF THE STUDY

It is desired to explain the limiting circumstances that prevailed at the time of planning the 1947–1948 study. Before this particular investigation was contemplated the policy of the Army had already been adopted to vaccinate

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† This investigation was conducted under the auspices of the Commission on Influenza, Army Epidemiological Board, United States Army, Office of the Surgeon General, Washington, D. C.

all troops in the fall or early winter of that year. A new supply of vaccine was ordered and it was to contain the strain of virus that had by-passed the vaccine used in the preceding winter and spring. Because the quantity of new-formula material that could be promised for delivery in the fall was insufficient to supply the entire Army, it had been decided to supplement this limited amount with old-formula material to be used in certain specified areas.

Under the circumstances then prevailing the inclusion of an *unvaccinated* control group could not be considered in any trials that were to be carried out in the Army. The only kind of a study that could be conducted was one in which a comparison would be made between groups given the *two different* vaccines. The two vaccine preparations were the same in so far as both contained the Type A and Type B components, but they differed in respect to the presence or absence of the new component that is now referred to as Type A-prime.

It is obvious that a study of this sort would yield information on the efficacy of vaccination only if the virus operating during the period in question were similar to the one present in the new vaccine and absent from the other. Although this plan was far from ideal, it did serve the purpose of initiating the field trials in the Army without further delay and offered the opportunity to gain experience that would be of value the following year.

PROCEDURE

Accordingly, arrangements were made for a study to be conducted at Fort Dix, New Jersey. Approximately 60 per cent of the strength of this induction and training center of 15,000 were trainees who remained for approximately 13 weeks; the remainder were cadre and personnel of the post detachments.

The scheme for distributing the two vaccines equally in the population was to give the *old-formula* material to men with serial numbers ending in *odd* digits and the *new material* to men with numbers ending in *even* digits. On November 14, 1947, all of the trainees and cadre of the training companies were inoculated according to this scheme, and in the following week the detachments were similarly treated. Subsequently, the same plan was employed in the treatment of all newly formed companies. Influenza vaccine was administered along with the other immunizations at the time of medical processing, thereby maintaining the division of the entire post into two groups. Great care was exercised to maintain the distribution of the vaccines according to the serial-number scheme and to reduce exceptions and error to a minimum. This procedure was continued until April 1, 1948.

The two vaccines used in this study were prepared commercially. The *old-formula material* was from a single batch of vaccine prepared for use in the winter of 1945–1946.[4] The virus in this vaccine was concentrated by the method of red cell adsorption-elution.[13] At the time of use in this study the vaccine was more than two years old; and this was about one year beyond the expiration date. The strains of virus in this vaccine were PR8 and Weiss, Type A, and Lee, Type B. The *new-formula material* was from a single batch, freshly prepared just a few months prior to use in this study. Concentration of virus was affected by Sharples centrifugation,[14, 15] and the strains represented were PR8 (Type A), FM1 (Type A-prime) and Lee (Type B).

Even though the two vaccines differed in strain composition it was still necessary to evaluate serologically the effect of each in terms of their different antigenic components. This was done by comparing antibody titers in serum collected before and again two weeks

TABLE 1

Geometric Mean Antibody Titers Before and Two Weeks After Vaccination in Subjects Inoculated with "Old-Formula" and "New-Formula" Influenza Virus Vaccine*

Antigen in Serological Test	"Old-Formula" Vaccine (142 Subjects)			"New-Formula" Vaccine (81 Subjects)		
	Pre-Vacc.	Post-Vacc.	-Fold Change	Pre-Vacc.	Post-Vacc.	-Fold Change
PR8	70	536	7.7	65	440	6.8
LEE	80	880	11.0	75	640	8.5
FM1	68	163	2.4	73	438	6.0

"Old-Formula Vaccine" was from the supply prepared for use in the winter of 1945–1946 and had an expiration date of December, 1946. It was administered to these subjects on November 14, 1947. This vaccine contained the PR8 and Weiss Strains of Type A and the Lee Strain of Type B virus.

"New-Formula Vaccine" was freshly prepared just a few months prior to use in November, 1947. It contained the PR8 and FM1 strains of Type A and the Lee strain of Type B virus.

* Antibody titers (agglutination-inhibition) are expressed in terms of the dilution of serum inhibiting 4 units of hemagglutinin.

after inoculation. The data, for groups of individuals given the different vaccines, are summarized in Table 1 in terms of the geometric mean titer as well as the -fold increase as measured with three different antigens. Although the *old-formula vaccine* induced a distinct elevation in antibody level for the PR8 and Lee antigens, there was only a slight increase in antibody for the FM1 antigen. The *new vaccine* was distinctly more effective than the *old* in terms of the antibody response measured with the FM1 antigen. It is interesting to note that the older preparation, although one year beyond its expiration date, appears to have induced a somewhat better response than the new material to the PR8 and Lee components.

The antigenicity of the two vaccines was also tested in mice and they were found to be equally effective with respect to the PR8 (Type A) and Lee (Type B) components. As was to be expected the *old-formula vaccine* failed to induce the formation of any antibody for the FM1 strain (Type A-prime), while the new material was as effective in the formation of antibody for FM1 as it was for the PR8 and Lee strains.

OBSERVATIONS

In planning the clinical and epidemiological aspects of the study it had been decided to base any evaluation of vaccination effect upon the number of cases of respiratory disease hospitalized or put on quarters. Although the limitation of this procedure is thoroughly appreciated it was believed to be sufficiently reliable to evaluate the crude data obtained in this manner, particularly since the groups were to be equal in size and were to be treated in the same way. Moreover, an adequate sampling of cases for serological study was to be made.

After the study was begun careful records were kept of all admissions to hospital or to quarters for reasons of respiratory disease. In addition, records were kept of the number of admissions to hospital from the odd and even serial-numbered groups for other illnesses as well.

Before presenting the data it is desired to point out that proven cases of influenza among patients in Army hospitals have usually been found among those diagnosed as "nasopharyngitis," or occasionally as "laryngitis" or "bronchitis." Even though the systemic component of the illness may predominate and may strongly suggest the diagnosis of influenza, this diagnosis is not used and preference is given to the terms referring to the area of the

TABLE 2

Tabulation of Number of Cases of Nasopharyngitis, Laryngitis, and Bronchitis that Occurred Each Week in "Odd" and "Even" Groups Given "Old-Formula" and "New-Formula" Vaccine, Respectively. Fort Dix, New Jersey, 1947–1948

Month	W/E	Mean Strength	Number of Cases *		Cumulative Total		Difference
			Odd	Even	Odd	Even	Odd-Even
December	5	13,226	7	5	7	5	+ 2
	12	12,517	14	20	21	25	— 4
	19	12,422	16	8	37	33	+ 4
	26	12,448	2	0	39	33	+ 6
January	2	11,900	2	9	41	42	— 1
	9	12,192	15	9	56	51	+ 5
	16	12,916	15	16	71	67	+ 4
	23	13,740	40	34	111	101	+10
	30	14,077	48	38	159	139	+20
February	6	14,199	84	65	243	204	+39
	13	14,375	77	63	320	267	+53
	20	14,566	61	49	381	316	+65
	27	14,907	49	47	430	363	+67
March	5	15,108	44	56	474	419	+55
	12	15,541	47	33	521	452	+69
	19	15,639	58	64	579	516	+63
	26	16,216	26	34	605	550	+55
April	2	16,261	39	20	644	570	+74
	9	16,895	10	20	654	590	+64
	16	17,017	17	15	671	605	+66
	23	16,832	18	15	689	620	+69
	30	16,681	32	37	721	657	+64
May	7	16,463	39	24	760	681	+79
	14	15,748	33	23	793	704	+89
	21	15,297	19	21	812	725	+87
	28	13,905	33	25	845	750	+95
June	4	14,016	15	10	860	760	+100
	11	14,131	18	11	878	771	+107
	18	14,152	11	14	889	785	+104
	25	14,579	18	19	907	804	+103
July	2	14,856	16	18	923	822	+101

* Hospitalized or put on quarters

FIGURE 1

Comparison of Weekly Incidence of Nasopharyngitis, Laryngitis and Bronchitis in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine

FORT DIX, N J, 1947-48

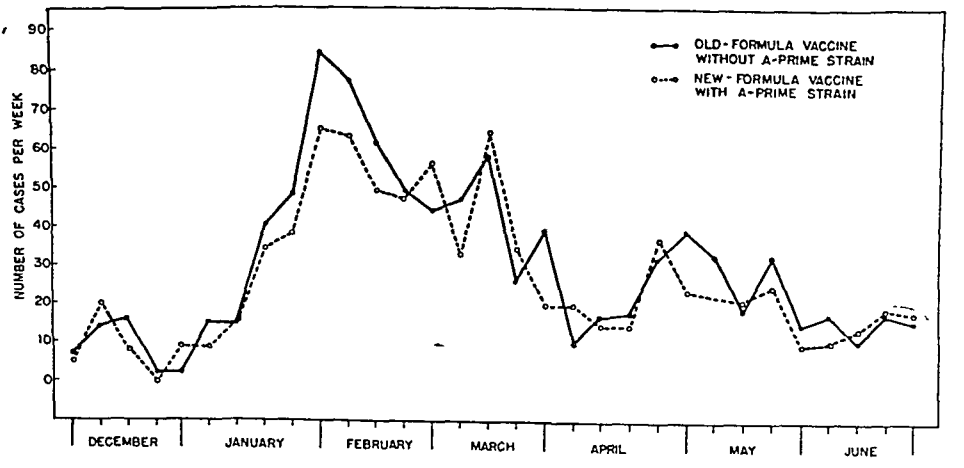
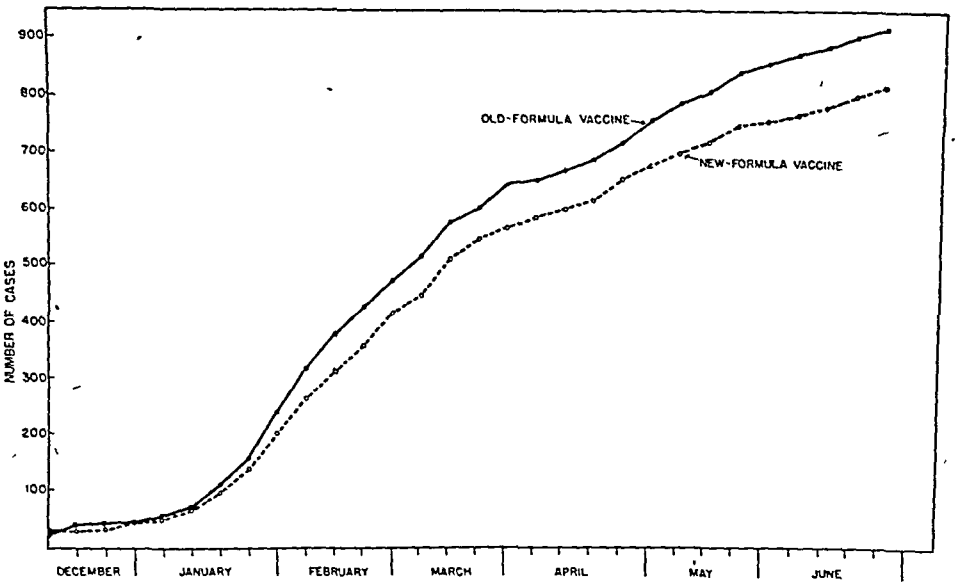


FIGURE 2

Comparison of Cumulative Number of Cases of Nasopharyngitis, Laryngitis and Bronchitis in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine

1 DEC., 1947 THROUGH 1 JULY, 1948



respiratory tract most prominently involved. It is for this reason that special attention was given to the group of cases diagnosed as nasopharyngitis, laryngitis, and bronchitis.

The data in Table 2 and Figure 1 indicate the number of patients hospitalized or put on quarters each week with such diagnoses. In almost all cases the presence of a temperature of 100° or higher was the basis for inclusion in these categories. It will be seen that in both odd and even serial-numbered groups, which had been given the "old"- and "new"-formula vaccines, respectively, there was a distinct increase in the incidence of respiratory disease beginning in mid-January and lasting until mid-March. Then, at the end of April and lasting a few weeks into May, there was a second noticeable increase.

It is difficult to see from Figure 1 that, during the period when the amount of respiratory disease was increased, the number of illnesses in the odd half of the population was somewhat in excess of that in the even half. This trend is shown more clearly when the data are presented cumulatively.

Figure 2 shows graphically (also see Table 2) the cumulative number of cases in the odd and even groups from December, 1947, to July, 1948. It is clear that the number of cases from the odd group exceeded the number of cases from the even group. The extent of the difference at the end of the observation period was 101 cases.

The question at once arises as to the significance of this difference. The data in the next few figures and tables are intended to help answer this question.

Figure 3 contains a graph of the cumulative number of admissions to hospital for a variety of conditions other than nasopharyngitis. The data for the months December, 1947, through April, 1948, include hospital admissions for injuries, surgery, venereal diseases, and neuropsychiatric conditions; and to these have been added admissions for tonsillitis, scarlet fever, pneumonia, otitis media, and mumps. The data for

the first group were kept only until the end of April, 1948, since the original intention was to conclude the study period as of the latter date. However, the graph was extended by charting the additional admissions for the infectious diseases mentioned, over the remainder of the period, because the nasopharyngitis group was carried to the end of June. The reason for the extension will be evident from the data in Figure 3.

Figure 3 shows that through the period of observation there was no difference in the cumulative admissions from the odd and even groups, in terms of the diagnoses noted above. In the majority of instances the respective points for any one week fall so close together as to be indistinguishable. The two inseparable lines describing the cumulative number of cases of "*other*" diseases are in contrast to the two distinctly divergent lines for *nasopharyngitis, etc.*, as shown in Figure 2.

Although the data in Figure 2 clearly indicate that a greater number of cases of respiratory disease had occurred in that half of the population with odd serial numbers, it is not easy to tell from the graph when this difference occurred or to what extent. In order to show this difference, a series of points was plotted (Figure 4) to demonstrate the extent to which the cumulative number of admissions from the odd group exceeded admissions from the even group at the end of each weekly period from December, 1947, to July, 1948.

Figure 4 shows a comparison of the curve expressing the degree of difference in the cumulative admissions from the odd and even groups for common respiratory disease (which would also include the influenzas) and for other diseases. It is readily seen that illnesses *other* than nasopharyngitis occurred in equal numbers of odd and even men throughout the observation period. This is indicated by the fluctuation of the difference curve near the zero-line.

Cases of common respiratory disease also occurred in equal numbers in odd and even groups during December, 1947, and early January, 1948. However, beginning in mid-January the number of cases among *odd* men began

FIGURE 3

Comparison of Cumulative Number of Cases of Illness other than Common Respiratory Disease in Two Groups Given Old-formula and New-formula Influenza Virus Vaccine

1 DEC., 1947 THROUGH 1 JULY, 1948

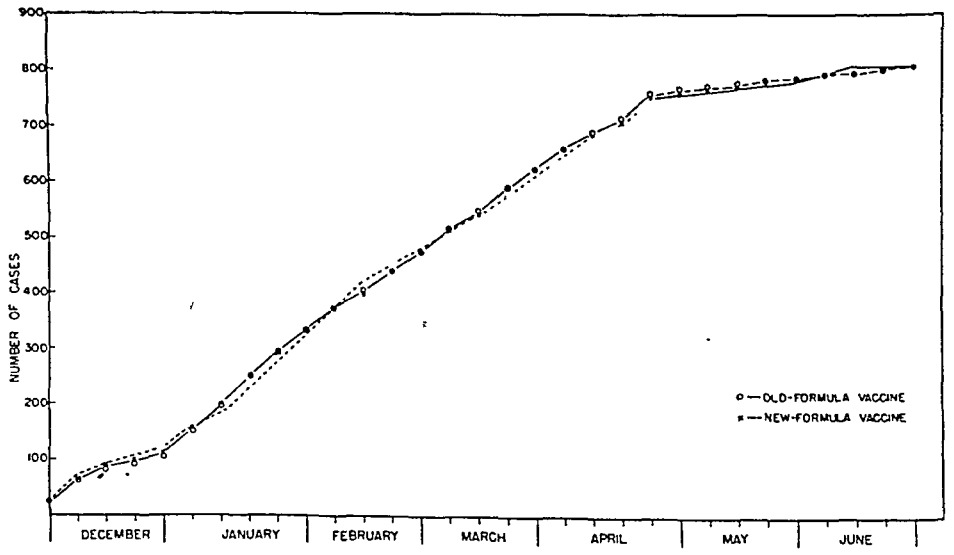
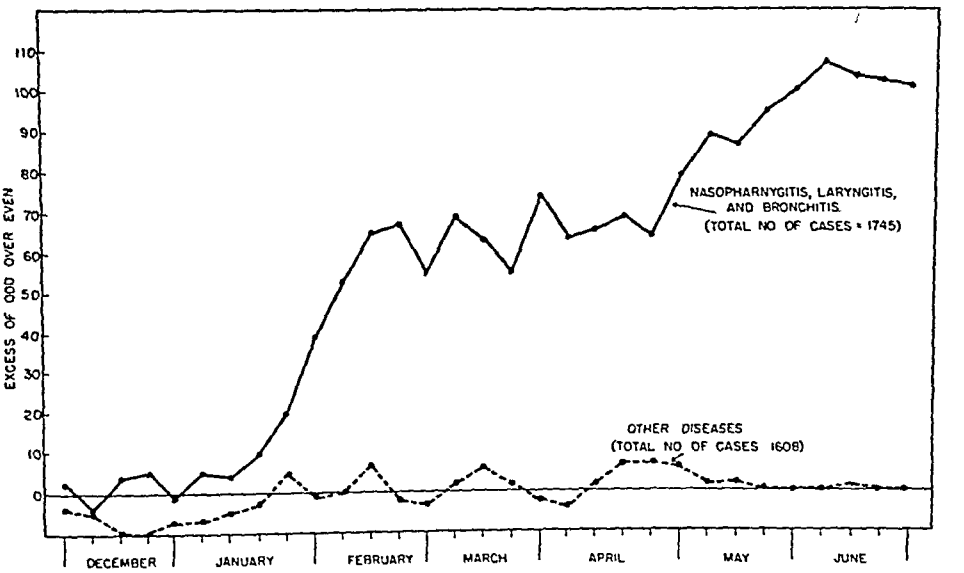


FIGURE 4

Difference in Cumulative Number of Cases of Illness in Odd- and Even-Numbered Men Given Old formula and New-formula Influenza Virus Vaccine, Respectively



to exceed the number of cases from the *even* group. This continued until the end of February. Although, as shown in Figure 1, the high incidence of respiratory disease was maintained until the end of March, before declining to lower levels, the number of such cases among odd and even men was essentially the same through March and April. Then, during the second increase in common respiratory disease in April and May, there occurred another period when odd-numbered cases exceeded even-numbered ones. In June both groups were again equally represented.

It appears from these data that some factor was operative during the periods in January-February and April-May when the even-numbered group was favored with fewer cases of respiratory disease. It is to be recalled that the odd- and even-numbered groups differed with respect to one factor only; the even-numbered men had received the "new" vaccine containing antigens of the A-prime strain as well as the A and B strains, while the odd-numbered men had received so-called "old" vaccine that contained only the A and B antigens, but not the A-prime antigen.

It seems reasonable to conclude that the occurrence of 101 fewer cases of respiratory disease in that half of the population with even serial numbers was related to the treatment given. The data shown in the foregoing charts are summarized in Table 3.

For comparison with the numbers of odd and even men diagnosed as having had *nasopharyngitis, laryngitis,* and *bronchitis,* there is shown the number of cases of *other illnesses* from the odd and even groups. In addition the number of odd and even men in eight companies selected at random is tabulated for comparison. This number was selected to show how many odd and even men are found in a randomly selected group comparable in size to those in the illness categories.

It is clear that the difference of 101 cases of nasopharyngitis, etc., between the odd and even groups is significant in view of the fact that little or no difference between odd and even is evident in other categories of similar size. Al-

TABLE 3

Comparison of the Total Number of Cases of Common Respiratory Disease, and of Other Diseases, in Odd and Even Groups Occurring in the Interval December 1, 1947–July 2, 1948

	Number of Cases			Difference
	Total	Odd *	Even *	Odd-Even
Nasopharyngitis, etc.[1]	1,745	923	822	+101
Other Diseases [2]	1,608	804	804	0
Population Control [3]	1,691	848	843	+5

* The odd group received old-formula vaccine and the even group received new-formula vaccine.

[1] Includes cases hospitalized or put on quarters for illnesses diagnosed as nasopharyngitis, laryngitis, or bronchitis.

[2] Includes admissions to hospital for venereal disease, surgery, injuries, neuropsychiatric conditions as well as the pneumonias, tonsillitis, scarlet fever, otitis media, and mumps.

[3] Represents the number of men with odd and even serial numbers in eight companies selected at random.

TABLE 4

Tabulation of Number of Cases of Nasopharyngitis, etc., Among Men with Odd and Even Serial Numbers in 5 Successive Intervals Between December 1, 1947, and July 2, 1948

Inclusive Dates	Length in Weeks	Odd	Even	Excess of Odd over Even
Dec. 1–Jan. 15	6	56	51	+ 5
Jan. 16–Feb. 26	6	325	265	+60
Feb. 27–April 30	10	340	341	— 1
May 1–June 17	6	157	114	+ 43
June 18–July 2	3	45	51	— 6
Total	31	923	822	+101

though a statistical test for significance supports this statement, the data shown in Tables 4 and 5 are presented to strengthen the opinion that the divergence is probably due to a difference in the number of cases of influenza in the two groups and that this was brought about as a result of vaccination.

In Table 4 it is seen that the difference between odd and even, with respect to numbers of cases of nasopharyngitis, occurred in two distinct periods. From the serological data (to be presented below) it is evident that a flurry of influenza occurred during the first of these periods (January 16–February 26), and it may be presumed to have occurred in recognizable numbers during the second period (May 1–June 17).

Table 5 contains a comparison of the numbers of cases of nasopharyngitis in odd and even groups during the period of presumed virus activity and in the remainder of the observation period.

TABLE 5

Numbers of Cases of Nasopharyngitis, etc., from Odd and Even Groups in the Intervals of Presumed Influenza Virus Activity as Compared with the Remainder of the Observation Period

Periods of Presumed Virus Activity	Length in Weeks	Odd	Even	Excess of Odd over Even
Jan. 16–Feb. 26 May 1–June 17	12	482	379	+103
Remaining Periods				
Dec. 1–Jan. 15 Feb. 27–April 30 June 16–July 2	19	441	443	— 2
Total	31	923	822	+101

Although comparable numbers of cases occurred during both periods the difference between odd and even was evident only during the intervals January 16–February 26 and May 1–June 17.

SEROLOGICAL STUDIES

At the time the difference between the odd and even groups was recognized, serological tests had not yet been done on the acute and convalescent sera collected from patients hospitalized with respiratory disease. Paired specimens were collected from more than 500 individuals who were ill in the period of the highest incidence of illness. In view of the analysis shown in the foregoing, it was not surprising to find that a certain number of cases of influenza A had occurred; nor was it surprising that the strain of virus prevalent appeared to be, from the serological findings, more closely related to the 1947 virus (Type A-prime).

Of the group of 528 paired serum samples only 28, or about 5 per cent, were found to have significant antibody increases (4-fold or more) in the convalescent sera when tested with the FM1 strain (Type A-prime). Of the 28, only 4 were detected to have a 4-fold rise in titer when tested with the PR8 strain (Type A), and 9 more showed a 2-fold change in titer; thus suggesting a closer antigenic relationship to the A-prime subgroup of influenza virus Type A. It is interesting to note that 19 of the 28 positive cases were individuals with odd serial numbers, and 9 were from the even-numbered group.

The relatively small number of serologically positive cases indicates that only a small proportion of the illnesses responsible for the peak in February and March was due to the influenza virus. The cases examined serologically were those occurring in that period; blood for study was not obtained during the flurry in the late spring. The small number of cases of proven influenza were not concentrated in any particular organizations.

DISCUSSION

The serological data are of help in evaluating the clinical and epidemiological findings. The fact that the proportion of serologically proven cases of influenza was so low makes the difference of 100 cases between the odd and even groups more significant than if the proportion of influenza infections was high. It is not possible to estimate the per cent reduction in the influenza attack rate resulting from vaccination without resorting to too many assumptions in arriving at an estimate of the number of cases of illness attributable to the influenza virus. The result would be of questionable value. Suffice it to say that when two vaccinated groups of equal size in the same population were compared, the one given the vaccine that furnished the broader antigenic coverage experienced approximately 100 fewer cases of respiratory disease as compared to a similar group given a vaccine that was defective with respect to the particular antigen for the prevalent virus.

Largely because of the nature of the "control" group and the low incidence of cases of proven influenza, it is not desired to draw far-reaching conclusions from this study. Nevertheless, several things have been learned.

1. As an addition to information from earlier studies, which indicated that vaccination reduces susceptibility to naturally occurring influenza A and B, the present investigations show that susceptibility to the disease caused by a virus of the A-prime sub-group can also be reduced by vaccination. The failure of vaccination to influence susceptibility in the spring of 1947, together with the findings in the present study, emphasize the necessity for continuing to include the new antigen in

vaccines of the future, and emphasize a problem long recognized, namely the necessity for further study to determine the most effective antigenic formula.

2. From independent studies of the Fort Dix epidemiological data by Dr. Philip Sartwell, of the School of Hygiene of Johns Hopkins University, as well as the observations that have been described, it seems that influenza *did not* occur in epidemic proportions at Fort Dix during the period of this study. Accordingly, it might be concluded that a proportion, at least, of influenza virus infections that occur *sporadically* or *endemically* can be prevented by vaccination.

Even though influenza vaccines may not yet be complete in their coverage they do contain, nevertheless, antigenic components for certain viruses that are potentially the cause of moderately severe disease in man that may be extensively disseminated, sporadically or epidemically.

In closing, a word of optimism is in order to counteract opinions that have emanated from various quarters of disappointment in the "failure" of vaccination to influence susceptibility to influenza in the spring of 1947. In the opinion of others, the so-called failure has been regarded as a finding of great importance. One cannot escape the fact that at that time an etiologic agent was discovered capable of causing widespread disease in man, and by virtue of the vaccination studies, its antigenic difference from previously isolated strains of influenza virus Type A was clearly recognized. Some have stated that this strain is a "mutation" and that this might mean that we will always be immunizing against a disease that occurred the year before.

There seems to be something wrong with this idea from a biological viewpoint. It might be questioned whether the new strain may not have prevailed at some previous time. It is entirely possible that it may have escaped detection in recent years, or that it had been more active prior to the time when the influenza viruses were so easily isolated.

It is a more hopeful view to consider that there is a finite number of antigenic varieties, or sub-groups, and that we may not yet have them all in the various laboratories throughout the world, nor is the classification yet complete.

The results of the work of the strain study center of the Influenza Commission and the results of the field studies, already under way for 1948–1949 and to be continued indefinitely into the future, should provide the answers.

SUMMARY

1. In the winter of 1947–1948 studies on vaccination against influenza were carried out in a military installation. Due to limiting circumstances that are described, the study involved a comparison of two vaccines that differed in strain composition. Representative strains of Type A and Type B viruses were present in both. However, only one of the two vaccines contained, in addition, the antigenic variant of the Type A strain (referred to as A-prime) that was prevalent during the winter and spring of 1946–1947.

2. The entire population was vaccinated; men with odd serial numbers received one of the vaccines and the even-numbered men received the other. Records were kept of admissions to hospitals and to quarters for all diseases. The data revealed that the group given the new-formula vaccine, which contained the A-prime antigen, experienced approximately 100 fewer cases of respiratory disease. As for other illnesses there was no difference, in this respect, between groups given the different vaccines.

3. Serological tests of acute and convalescent sera revealed the occurrence of a small proportion of cases of influenza virus infections during the period of increased prevalence of respiratory disease. Moreover, from the serological studies it appears that the prevalent virus was related to the A-prime sub-group, which was represented in only one of the two vaccines.

4. These observations indicate that during a period in which *influenza occurred sporadically or endemically,* the use of a vaccine hav-

ing the specific as well as the broader antigenic coverage, was effective in reducing the number of cases of respiratory disease.

5. The significance of the existence of antigenic varieties of influenza virus strains is discussed in relation to the problem of immunization.

ACKNOWLEDGMENTS: These studies could not have been undertaken without the interest and willing coöperation of certain key persons in the organizations involved. It is a pleasure to express our grateful appreciation to Lt. Col. Frank W. Threadgill, Post Surgeon at Fort Dix; to Col. Charles W. Farinacci, Commanding Officer of the First Army Area Medical Laboratory; and to Col. Leroy D. Soper, Commanding Officer of Tilton General Hospital. It is desired to acknowledge, too, the generous assistance of the staffs of the respective organizations.

As noted in the text, these studies were initiated following the advice of a committee of the Army Epidemiological Board and of members of the Office of the Surgeon General. The advice and suggestions of the committee in planning the work are greatly appreciated. It is desired to acknowledge particularly the helpfulness of Col. Tom F. Whayne, Lt. Col. Frank L. Bauer, and Maj. Thomas G. Faison. The continued interest and advice of Dr. Thomas Francis, Jr., is warmly appreciated.

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Mental Hygiene Statistics

The Division of Mental Hygiene of the U. S. Public Health Service on November 1, 1948, published the first of a series of current reports on Mental Hygiene Statistics to be designated as the MH-S series, and making available the results of the annual Survey of Patients in Mental Institutions earlier than the final published report. The first report shows by states and regional division normal capacity, percentage of overcrowding, the full-time administrative staffs, and expenditures for the maintenance of state hospitals for mental disease in 1946. The Annual Census of Patients in Mental Institutions was transferred from the Census Bureau to the Public Health Service early in 1948.

A Public Health Rh Program on a State-wide Scale*

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THE philosophy of any state as to what constitutes public health work will determine its attitude toward an Rh program. The widening concept of the function of a public health laboratory has made it possible to include blood grouping as one of the essential procedures in many states. Evidence that many neonatal deaths could be prevented by giving the attending physician advance warning of possible trouble prompted the Utah State Board of Health to approve an Rh typing program without qualification.

The drafting of a set of comprehensive plans was made a joint responsibility of the Division of Laboratories and the Division of Maternal and Child Health; the former to provide equipment and secure personnel, and the latter to pay the cost of all salaries and biologicals. These plans were completed early in 1946, but until a dependable supply of antiserum and additional personnel were assured, the program was delayed until July, 1947. The final draft contained three major objectives:

1. Insuring the Rh typing of every pregnant woman
2. Finding new sources of typing sera
3. Aiding communities to establish blood donor lists

All three objectives have been thoroughly covered. Every blood sample labelled "prenatal" is routinely checked for A-B-O and Rh types. During the first year, over 96 per cent of all gravid women in Utah were typed by the State Health Laboratory, indicating that the program was well accepted by the physicians.

Due to the lack of personnel, no attempt has been made to process typing sera for our own use. The Blood Grouping Laboratory of the University of Utah is engaged in preparing such sera, and many of our reagents are secured from that source. By making available to Dr. G. Albin Matson,† head of the University Laboratory, lists of the women whom we find to be sensitized, we are assuring ourselves and other laboratories a much larger supply of serum.

The Utah Health Department does not have facilities to put into effect a state blood bank such as that of Massachusetts.[1] As a substitute, we are permitting physicians to collect blood from volunteers for typing, and it is up to the physician to obtain donors when needed. This phase of the program was ignored until we could be sure of an ample supply of anti-C and anti-E sera. The reason lies in the fact that cross-matches as done in many hospital laboratories do not take into account the possibility of Rh antibodies in the recipient. To avoid the least chance

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

† Now Director of Blood Banks, Latter Day Saints Hospital System.

of transfusion reaction, it is necessary that any donor reported "negative" lack all three antigens.

In fulfilling the basic points in the Rh program, we found the answers to several questions which had been raised when the plans were first outlined. Chief among these were cost, personnel, space and equipment, reliability of mailed samples, and scope of the program.

Cost—The total cost to Utah for the first year was slightly over $10,000 and estimates for the present year indicate that the amount spent will be approximately $11,000 for a greatly enlarged program. Table 1 gives a breakdown of these figures.

Personnel—The present personnel consisting of a specialized serologist as Chief of Section, a laboratory helper, and a secretary, is just adequate to handle the number of typings and titrations with the methods now in use.

Space and Equipment—Lack of space is frequently mentioned as a reason for not doing Rh work. Our entire Rh section is compressed into an area of 91 sq. ft. This is too little, to be sure, but the work gets done. With the exception of a view box for slide testing, the essential equipment such as centrifuges, refrigerator, water bath, etc., should be found in any laboratory. While a deep freeze unit is desirable for storing serum it is not necessary.

Reliability of Mailed Samples—In 1947, the New Jersey Laboratory sent out a questionnaire including the query "Are mailed samples reliable for typing?" The laboratories doing Rh work at that time agreed that such samples are suitable, but cited no satisfactory experimental evidence. Controlled work on our part, still in progress, has been advanced to a point that has satisfied us that even badly hemolyzed specimens can be typed with complete certainty.

Scope—Prenatal specimens are typed routinely; husbands (or families) of Rh-negative prenatals and blood donors

TABLE 1

Cost of Rh Program in Utah for 1947, Estimated for 1948

Biologicals *Serum*	*Year*	*Specimens*	*cost/ml.*	*tests/ml.*	*cost/test*	*Total*
Anti-D agglutinating	1947	23,787	$3.50	30	$0.117	$2,775.00
	1948	27,000	1.50	30	0.050	1,350.00
Anti-D blocking	1947	8,244	2.00	33	0.061	500.00
	1948	27,000	2.00	60	0.033	900.00
Anti D tube check	1947	—	—	—	—	—
	1948	5,040	4.25	37	0.114	595.00
Anti-D slide check	1947	—	—	—	—	—
	1948	480	1 50	30	0.050	24.00
A and B	1947	25,768	1.00	100	0.010	515.00
	1948	27,000	1.00	100	0.010	540.00
Anti-CD	1947	298	1.50	30	0.050	15.00
	1948	3,400	1.50	30	0.050	170.00
Anti-E	1947	298	4.00	35	0.114	34.00
	1948	3,400	4.00	35	0.114	388.00
30% Albumin	1947	2,357	—	—	0.036	85.00
20% Albumin	1948	2,830	—	—	0.022	62.00
Totals	1947	—	—	—	—	3,924.00
	1948	—	—	—	—	4,029.00
Salaries	1947	—	—	—	—	6,500.00
	1948	—	—	—	—	6,880.00
Total Cost of Rh Program	1947	—	—	—	—	$10,424.00
	1948	—	—	—	—	10,909.00
Total number of tests (including all typings, titrations, screenings and specificities	1947	61,360	—	—	—	—
	1948	96,000	—	—	—	—
Average cost/test	1947	—	—	—	$0.170	—
	1948	—	—	—	$0.114	—

upon request. Premarital typings are refused, for tripling the size and cost of our present organization to satisfy curiosity does not seem justifiable. As pointed out by Cappell,[2] specimens from gravid women should be typed with anti-D serum only, and a highly effective program may be based on the use of the one serum. We subtype all D-negatives with anti-CD and anti-E sera, but for the prenatals report the result of the D typings only. These subtypings represent our only method for obtaining a steady supply of C and E cells to use in specificity tests. In some instances, they have enabled us to explain to the physician apparently discrepant results between our typings and those of laboratories using anti-CD serum for all purposes. Hr typing with anti-c serum is limited to husbands of known sensitized women. Because of the great element of uncertainty in these tests we recommend familial studies as well. A very guarded interpretation is sent with each report.

With regard to tests for sensitization, we feel that these should be an integral part of the routine in any public health laboratory doing Rh work. Public health emphasis is on prevention, and the only method for early recognition and treatment of erythroblastosis is by testing the mother's serum before delivery. Performing titrations on only those cases showing a suggestive clinical history or for the purpose of confirming a diagnosis is not sufficient to accomplish the aims of a public health service. Upon request we are trying routine tests for antibody on all D-negative prenatals, using the serum from the same specimen with which they were typed. A brief experience has shown that these extra tests can be done without increasing our personnel, and with very little extra cost. However, many women first see their doctor in the early months of pregnancy and antibodies are frequently not demonstrable until later. It has been our experience that many physicians are content with a single negative titration report, making the value of routine antibody determinations questionable, especially at an early stage.

Figure 1 gives an outline of the procedures in use. We have tried every type of test we could, including evaluation of some not mentioned here, retaining those found to be best adapted for large-scale work in our hands.

Use of an exceptionally potent agglutinating serum as well as a blocking serum from an independent source is necessary to check anomalous results between the tube and slide tests. We have found a few specimens which typed consistently positive by one method and negative by the other.

The tube test has been well standardized, and no departures have been made from the usual methods.

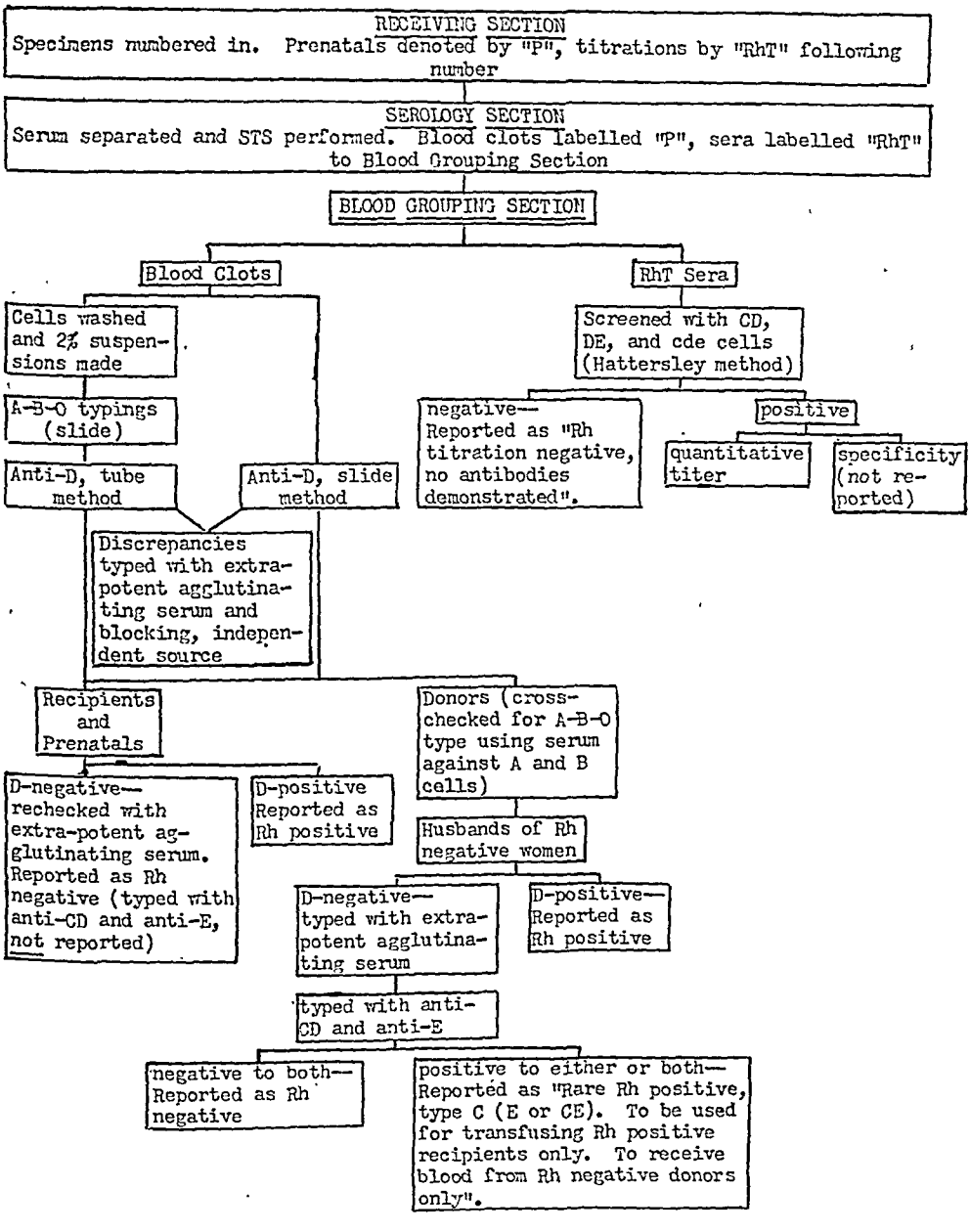
The slide test using clotted blood is readily adaptable to large-scale work. One person is able to run an average day's 85 specimens in 40 minutes.

It may be of interest to mention that the antibody in four samples would have been missed if the Hattersley technique[3] were not employed. Three showed a marked prozone in the blocking titration, while the fourth gave no reaction whatever unless centrifuged before incubation. Specificity tests are made against type "O" cells of Rh groups CD, DE, C, E, and Rh-negative. Several of each type are used; 8.5 per cent of the women tested are sensitized.

When the program began, the tube test with agglutinating serum was the only one used. During the time that this method was being followed the accuracy of our typings was only 99.2 per cent. Since the adoption of the multiple-check system, the accuracy has jumped to 99.91 per cent. These figures are based on repeated samples on the same individuals.

The fact that Utah has a prenatal STS law and that we do the vast ma-

Figure 1
FLOW SHEET OF PROCEDURES



jority of such specimens puts us in the best position to act as a central Rh laboratory for the entire state. van Saun [4] has emphasized this value of centralization, basing her arguments on the inadequacy of hospitals for the work, and the control on typing sera offered by doing large numbers of samples. Despite the improvement in typing sera brought about by the NIH standards, a careful check is still necessary. For example, we have received one lot of anti-D serum from a licensed firm which agglutinated only 40 out of

TABLE 2

Record of Results of Rh Program

Total specimens received	26,163	
Badly hemolyzed	376	1.43%
Total typings	25,787	
Individuals typed	23,661	
D-positive	19,647	83.04%
D-negative	4,014	16.96%
Screening test for antibodies	2,001	
Individuals tested	1,106	
Positive	94	8.50%
Total births in Utah	21,015	
Prenatal typings — same period	20,335	96.70%

200 known D-positive samples. In another instance, the alpha agglutinin was incompletely absorbed, while still another lot, labelled anti-D, contained anti-C antibody as well.

There are other reasons why a central laboratory is better for Rh typing than a number of small ones. The gathering of unselected statistical data and the dissemination of information from the literature can well be done in such a unit. Concentration of the comparatively few Rh specialists is desirable until more and better trained personnel become available. By better trained, we mean not only in the techniques of Rh typing, but in knowing what sera to use and when to use them. Misuse of typing serum has come to our attention on several occasions. A central laboratory can act as a focal point for those laboratories desiring to check their results against others. One step in this direction is an evaluation study on a voluntary basis which will cover about 50 per cent of the laboratories of Utah. This will be an annual service. As soon as enough public health laboratories begin Rh typing, a national evaluation similar to that used for syphilis studies would be highly desirable.

Conclusions reached from the first year's experience are:

1. Rh typing is definitely a public health function.
2. The minimum service offered by a public health laboratory should be typing with anti-D serum and testing for antibody formation.
3. Special tests, such as C, E, and Hr are recommended, but may be omitted depending on local conditions.
4. Mailed samples are completely reliable for Rh typing.
5. For greatest accuracy, both the tube test and the slide test should be used on all samples.
6. Rh education of physicians must be undertaken, before the full value of an Rh program can be realized.

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The Laboratory Diagnosis of Tuberculosis*

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PULMONARY disease can be detected clinically and radiographically but the demonstration of tubercle bacilli in the sputum or body fluids of a patient is the surest method of diagnosing tuberculosis. As other diagnostic methods find increasing employment, there arises a greater need for demonstration of the causative microörganism. The results of other procedures, including x-ray, may be equivocal. The finding of tubercle bacilli admits of no equivocation in the diagnosis.

With the advent of mass radiography many patients have been classified as "tuberculosis suspects." The physician is confronted with the problem of deciding: First, does this pulmonary lesion represent tuberculosis? and second, if this is tuberculosis, is it "active" or "inactive"? His decision determines whether or not the patient will be sent to a sanatorium or tuberculosis hospital. Unless repeated x-ray examinations show definite changes, it is almost impossible to answer either one or both of the above questions without bacteriological aid.

Modern laboratory methods of searching for the tubercle bacillus can greatly assist in the diagnosis of tuberculous pulmonary lesions. The three procedures most widely used are: (1) microscopic search, (2) cultural techniques, and (3) animal inoculation. Nearly all types of pathological material can be examined by one or all of these methods.

MICROSCOPIC SEARCH FOR TUBERCLE BACILLI

While other means are available for detecting tubercle bacilli in pathological material, none is so easy, rapid, or readily applicable as that based on the tinctorial reactions of this bacterium. Many staining methods have been devised, but the Ziehl-Neelsen technique remains the most reliable and widely used.

Microscopic techniques, however, are not sensitive enough to be reliable when small numbers of bacilli are being sought. It has been estimated that 100,000 bacilli per ml. of sputum must be present before their detection in smear preparations is likely. Also, it is not possible to say with certainty that acid-fast and alcohol-fast microörganisms which may be seen on a slide are really tubercle bacilli. In addition, it is extremely difficult, or impossible, to differentiate microscopically nonpathogenic acid-fast microörganisms from tubercle bacilli. Because of these difficulties, numerous other methods have been devised for the purpose of revealing tubercle bacilli in pathological material. The most promising, reliable, and inexpensive of these are methods of digestion and cultivation.

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

DEMONSTRATION OF TUBERCLE BACILLI BY METHODS OF DIGESTION AND CULTIVATION

For many years it has been the practice of some laboratories to use methods thought to concentrate tubercle bacilli. Usually this consists of the addition of a digesting agent to the specimen, followed by centrifugalization and search for the bacilli in the sediment. Recently, Spendlove, *et al.*,[1] have shown that in many cases this procedure actually dilutes the specimen and makes the bacilli more difficult to find. They have shown that direct smears made by selection of choice particles, such as caseous flecks in sputum, are more efficient than smears from acid and alkali concentration techniques.

With the development of more specific and more sensitive culture media, small numbers of tubercle bacilli can be detected in pathological material by methods of cultivation. From the diagnostic viewpoint, the ideal culture medium is one which initiates rapid growth from a small number of tubercle bacilli, at the same time inhibiting the growth of contaminating microörganisms. It should be simple to prepare, yet capable of supporting the growth of different types of tubercle bacilli, at the same time allowing one to differentiate them from saprophytic acid-fast bacilli. As yet there is no artificial medium which fully meets these criteria, but much progress has been made along certain lines which leads one to believe that soon more perfect culture media for tubercle bacilli will be devised.

Among the most significant and interesting recent work along this line in the United States has been the development of a synthetic liquid medium which supports submerged, diffuse growth of small inocula of tubercle bacilli. The stages in the development of this medium are of historical and academic interest.

In 1945 Rene Dubos[2] reported the development of a liquid semi-synthetic medium which supports growth of tubercle bacilli which is submerged and diffuse, apparently because of the presence of a water-soluble ester of a long-chain fatty acid. Davis and Dubos[3] later confirmed these findings, and investigated further the effects of the synthetic lipid components. These lipids consisted of esters of sorbitol and various long-chain fatty acids (lauric, palmitic, stearic, and oleic), which are used industrially because of their surface activity, i. e., detergency, wetting properties, etc. All these compounds are characterized by their possession of both lipophilic properties (determined by the constituent long aliphatic chain of the fatty acid) and hydrophilic properties (supplied by the multiple oxygen containing groups of the alcohol). Such substances are readily adsorbed on the surfaces of the tubercle bacilli, and their wetting effect promotes diffusion of the organisms throughout the medium. This also facilitates more intimate contact between organism and environment, and thus facilitates nutrition and growth.

Of the various surface-active compounds tested, one sold commercially as "Tween 80," a polyoxyethylene derivative of sorbitan mono-oleate, was found to be most satisfactory. Tween 80 is a yellow liquid, viscous in consistency but soluble in water in all concentrations. Aqueous solutions of Tween 80 have been found to be resistant to autoclaving, but deteriorate by slow hydrolysis upon standing at room temperature for several weeks.

Davis, Dubos, *et al.*, investigated the biological properties of tubercle bacilli growing diffusely in the presence of Tween 80, and found that the three major types, human, bovine, and avian, retained their characteristic morphology and staining properties for more than a year, with repeated transfers; and their viability for periods of several months.

Both crystalline serum albumin and "fraction V" were shown by Davis and Dubos, in a subsequent publication,[4] to have a stimulating effect on the growth of tubercle bacilli in Dubos medium. Albumin alone facilitates the initiation of growth of small inocula but does not markedly increase the total amount of growth, whereas, the sorbitan monooleate (Tween 80) alone does not permit growth of the smallest inocula. The incorporation of both albumin and Tween 80 seemed to enhance multiplication; growth of the smallest inocula being detectable in 8 to 11 days. In general, serum albumin protects the tubercle bacilli and other microörganisms from the toxic action not only of long-chain fatty acids but also of many other substances: heavy metals, phenolic compounds, etc. Its major role in Dubos medium, however, is the binding of the traces of oleic acid liberated from the Tween by hydrolysis during sterilization, etc.

In a later publication Davis and Dubos[5] demonstrated beyond doubt the toxicity of unesterified fatty acid for tubercle bacilli, after developing a method[6] for extracting small quantities of fatty acid in the presence of Tween.

In addition to its protective action, the albumin was discovered to exert an undesirable effect as well. Commercial albumin (Fraction V) was found to contain small amounts of lipase which in several weeks hydrolyzed enough Tween to exceed the binding capacity of the protein which had been found to be about 2 per cent of its weight of fatty acid. Subsequent investigations[7,8] substantiated these early findings. Several methods were discovered for eliminating lipase activity from albumin.

Although Dubos and Davis never stated that this medium was devised for diagnostic use, it was apparent that investigations along these lines would soon follow. In a preliminary report, based on 165 specimens, Foley[9] concluded that this medium could be successfully used to isolate tubercle bacilli from various pathological materials. He pointed out the marked reduction in time (av. 10 days) required for the laboratory diagnosis of tuberculosis. In a second report Foley[10] summarized his experiences with the diagnostic use of this medium as shown in Table 1.

TABLE 1

Guinea Pig vs. Dubos Medium (Foley)

	Positive by				
	Guinea Pig Only		*Culture Only*		
Culture and Guinea Pig	*No.*	*Per cent*	*No.*	*Per cent*	*Mean Incubation (days)*
57	54	94.7	50	87.7	10.6

Foley also commented on his experience with the use of a modification of Dubos medium made solid with agar and recognized the difficulties involved in differentiating tubercle bacilli from saprophytic acid-fast bacilli:

"Saprophytic mycobacteria as yet cannot be sufficiently differentiated to permit the exclusive use of these media for the specific diagnosis of tuberculosis on certain kinds of material; namely, urine and gastric aspiration."

He also stated:

"As yet, too few positive specimens have been studied on the solid medium to permit analysis. The few strains isolated, as well as stock cultures of tubercle bacilli, grew as small, smooth, soft, colorless, semitransparent colonies after 7 to 10 days of incubation. Colony morphology was not unlike that of the streptococcus; markedly different from the hard, granular, opaque growth usually observed in coagulated egg media."

Goldie,[11] in 1947, reported the successful use of 2.5 per cent solution of ammonium carbonate for homogenization and concentration of tuberculous sputa which were then inoculated into Dubos medium containing 0.5 to 2 units of penicillin per ml.

Because of these encouraging reports many American laboratories have attempted to employ this medium for routine diagnostic cultures. For the most part the practice was soon abandoned for the following reasons:

1. The medium is easily contaminated. Unfortunately, when penicillin is added in concentrations high enough to be effective against contaminants, it inhibits growth of tubercle bacilli.[12,13] (See Table 2.)

TABLE 2

Examination of 5 Microscopically Positive Sputum Specimens by Two Different Cultural Methods and Guinea Pig Inoculation

Medium	*Culture showing growth of acid-fast organisms*	*Cultures showing positive results on inoculation into guinea pig*
Tween-Albumin + penicillin	0	0
Lowenstein	5	5

2. One can never be sure whether the turbidity which indicates growth is due to the presence of tubercle bacilli or other microorganisms.

3. The number of positive cultures is not greater than the number found on conventional solid egg media (see Table 3).

TABLE 3

Results of Attempts To Cultivate Tubercle Bacilli from 74 Specimens of Pathological Material on Dubos Medium and Solid Egg Medium *

	Dubos Liquid Medium	*Solid Egg Medium*
Positive cultures	3	17
Negative cultures	71	57
Totals	74	74

* From Wm. H. Maybury Sanatorium, Northville, Mich. (Courtesy—Dr. C. E. Woodfuff).

In larger series of specimens cultivated on Dubos medium in our laboratory and at the Barlow Sanatorium in Los Angeles, Calif.,[14] similar results were obtained. Because of this, the Committee on Evaluation of Laboratory Procedures of the American Trudeau Society[15] has stated that the Dubos medium in its present state is not recommended as a diagnostic medium. It seems reasonable to believe, however, that with certain modifications the Dubos medium can be developed into a medium suitable for primary isolation of tubercle bacilli. Much work is now under way with this goal in mind.

Many investigations have also been carried out attempting to simplify the more complex solid egg media (such as Petragnani's and Lowenstein-Jensen) now in wide use. The laboratory subcommittee of the American Trudeau Society[15] has devised a relatively simple egg-yolk medium which they now recommend for use in routine diagnostic laboratories.' This medium has the advantage of simplicity of preparation but has the disadvantage of supporting colony growth which is soft, creamy, and moist and, therefore, does not allow for easy differentiation of pathogenic from nonpathogenic acid-fast bacilli.

It is the experience of the Tuberculosis Evaluation Laboratory of the U. S. Public Health Service that the Jensen-Holm modification of Lowenstein's medium[16] is at present the most efficient culture medium for routine diagnostic use. Although somewhat difficult to prepare, it has the advantage of supporting the growth of human, bovine, and avian strains, and the trained bacteriologist can differentiate, with a fair degree of certainty, nonpathogenic from pathogenic acid-fast bacilli.

Colonies of human type tubercle bacilli generally appear in 12 to 25 days and because of their luxuriant growth are termed "eugonic." They are dry, friable, somewhat 'rough, and after a few weeks generally measure from 8 to 12 mm. in diameter. They assume a "cabbage" appearance and are easily detached from the surface of the me-

dium. They emulsify with difficulty.

Colonies of bovine bacilli do not grow as rapidly as the human type. They usually appear in 25 to 40 days. They are tiny, pale, smooth, pyramidal colonies. Their growth characteristics have been termed "dysgonic." They adhere to the surface of the medium and emulsify readily.

Colonies of avian bacilli generally appear in two to three weeks. They are smooth and hemispherical and often have a faint yellow or pink pigment. They are somewhat larger than bovine type colonies.

Acid-fast saprophytes appear in a few days and fortunately they are usually chromogenic. Their appearance differs from the pathogenic types in that they are soft, creamy, and usually smooth. Most strains will grow well at room temperature, whereas the tubercle bacilli require 37–38°C. for optimal growth.

Although some workers will not rely upon cultural characteristics to differentiate types, it is usually because they are not looking for these differences. With a modest amount of training, one can suspect the type of organisms from colony appearances using the Lowenstein-Jensen medium. However, final typing should always be made, resorting to the use of laboratory animals.

DEMONSTRATION OF TUBERCLE BACILLI BY ANIMAL INOCULATION

It has been pointed out that tubercle bacilli may be detected in sputum and other pathological material by careful microscopic examination and particularly by growth on culture media. Animal inoculation is a valuable additional method. This is essential in typing of strains and it may be necessary in making the diagnosis. From the diagnostic viewpoint, all urine specimens and gastric washings should be inoculated into animals as well as seeded on culture media. This is necessary because acid-fast saprophtyes are found most often in these body fluids. The smegma bacillus is a frequent inhabitant of the male genital tract, whereas many acid-fast saprophytes from food and other sources may be present in gastric washings.

Recently, experiments by Pierce and associates[17] and Patnode, *et. al.*,[12] have shown that intracerebal inoculation of susceptible strains of mice is a practical and feasible method of testing the virulence of cultures of acid-fast organisms. However, as yet, the routine use of the mouse as a primary diagnostic animal cannot be recommended. The guinea pig and rabbit are the animals of choice — the guinea pig for diagnosis of tuberculosis, human, or bovine, and the rabbit for differentiation between these two types. Fowl, of course, are needed for determination of the avian type.

Well controlled studies now indicate that cultivation techniques are as efficient for diagnosis as is animal inoculation (with the exception of urine and gastric washings). It is, therefore, recommended that all sputum specimens be cultured and that animal inoculation be resorted to only when one suspects bovine or avian type bacilli as indicated by colony characteristics.

SUMMARY

It is no longer acceptable to make a diagnosis of tuberculosis by x-ray findings alone. It is imperative, before a patient is subjected to prolonged therapy for this disease, that the diagnosis be made by recovery of tubercle bacilli from the patient's sputum or body fluids.

Microscopic demonstration of acid-fast bacilli is usually rapid and easy but one has no assurance that the organisms seen are tubercle bacilli, since acid-fast saprophytes are difficult to differentiate. Cultivation affords a more sensitive method of determining the presence of small numbers of tubercle bacilli

in pathological material. On the Lowenstein-Jensen medium the trained bacteriologist can differentiate, with a fair degree of reliability, pathogenic from nonpathogenic acid-fast bacilli. In its present state the Dubos liquid medium is not recommended for primary isolations. Animal inoculation should be performed on all urine and gastric specimens, since they more frequently contain nonpathogenic acid-fast bacilli. The mouse can be used in testing the virulence of a culture but cannot be used for primary diagnosis.

Since the advent of mass radiography, more than ever before it is imperative that laboratories be prepared to search for tubercle bacilli by methods of cultivation.

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Industry's Responsibility for Worker Health*

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THE Union Health Center furnishes a concrete example of organized labor's effort to provide medical care for workers. The International Ladies Garment Workers Union sponsors this institution, not only to take care of workers who are ill or injured, but also to prevent disability and maintain the health of workers on the job. In assisting union members handicapped by chronic disease to keep working and avoid the economic stress of disability, the institution renders a service not only to the individual, but also to the industry and the community as well.

HISTORY OF THE UNION HEALTH CENTER

The institution was founded in 1913, after a strike called attention to the sweatshop conditions existing in the industry and a Joint Board of Sanitary Control (made up of members of the union, the manufacturers, and representatives of the public) set to work to improve the hygienic conditions of the factories. A tuberculosis control program was instituted, sickness insurance inaugurated, and the Union Health Center began to provide medical service, primarily to offer preventive medicine at a convenient time and place and at a cost the worker could pay.

After 30 years, through the union members' own efforts and financing, the institution developed so that it provided about 125,000 services a year in 18 different medical specialties and diagnostic facilities. In 1944 the first employer contributions to the health and welfare funds for garment workers enabled the Center to begin an unprecedented program of expansion, and in 1948, about 450,000 services will have been rendered. The ratio of increase in the actual medical services rendered remained constant among the various specialties and general medicine. However, it was noticed that the ratio of the use of diagnostic facilities to the medical services showed a striking increase, indicating that a better quality of medical care is possible when the cost to the patient is no longer a limiting factor.

The Center occupies six floors of a 27 story building in the garment district of New York City. Its uninterrupted existence and its success in providing good medical care have been primarily due to the fact that it has always been under medical direction. A Medical Council helps formulate its policies and a Medical Board, composed of the heads of each medical service, meets periodically with the staff to consider administrative and scientific problems. Ten full-time physicians coördinate the work of about 125 visiting physicians who man the clinics, certify the disability claims, and direct health surveys. There are also 210 other employees, among whom are 32 nurses, 27 technicians, and 5 pharmacists.

* Presented before the International Association of Industrial Accident Boards and Commissions' Convention in New York, September 15, 1948.

SICKNESS INSURANCE IN THE LADIES GARMENT INDUSTRY

Before 1944, sickness insurance was financed by a nominal premium of $4.20 a year, paid by each member covered. This premium was far below those of many commercial sickness and accident policies. Further, the members of the ILGWU would be considered uninsurable by most underwriters because of the advanced age of the male workers (the average age is over 50) and the high percentage (85 per cent) of female workers.

With such low premiums it was necessary to have strict medical administration of the insurance fund. Therefore, the Health Center then examined each new member who applied for sickness insurance. Since 1945, contribution to the fund by the employers of the industry has made it possible to offer a wider scope of insurance to every union member, regardless of state of health, age, or sex.

Data accumulated in the year 1944, when sickness insurance was maintained wholly by the members, showed that the frequency of claims in that year was 5.7 per cent of the membership insured. The number of disability days averaged 42.3 per claim and 1.83 per cent of the insured members were hospitalized.

In 1947, when the exclusion clauses on gynecological, psychoneurotic, and other conditions were removed, the frequency of claims rose to 10.4 per cent, but disability days per claim dropped to 41.4. Hospital cases rose to 2.56 per cent.

PHYSICAL IMPAIRMENT NOT INCOMPATIBLE WITH PRODUCTIVITY

The value of a medical service program for workers is apparent from some of the data recently acquired, which confirms previous studies of the extent of chronic illnesses occurring among garment workers. We can emphasize that the physical impairment encountered among the skilled workers who are patients at the Health Center apparently does not lower their productivity. The figures covering the frequency of claims and the period of disability do not reflect the extent of the presence of chronic diseases in this group.

Study of a random sample of 5,000 claims for disability made by garment workers in 1947 reveals that the most common cause for disability is diseases of the heart and the circulatory system. These conditions cause the highest number of days lost by the average invalided worker in this industry—51.7 days a year.

The diseases of the respiratory system, which usually occur with the greatest frequency among the general population of this country, were second on the list, representing 14.7 per cent of the total. The average number of days lost through these conditions was less than half of the other disabling conditions—23.7 days per person. Eleven hundred and twenty-five workers were disabled by tumors, of which 415 were cancers or other malignant new growths.

It is estimated that among the 19,750 who received disability claims in 1947, 818,000 working days were lost. Therefore, the average number of days lost by each of the 180,000 insured members of the ladies garment workers union in New York City was 4.3 days in that year—a much lower figure than is found among the general population of this country.

These morbidity data were acquired through the use of the U. S. Public Health Service *Diagnostic Code for Use in Tabulating Morbidity Statistics* (1944). Estimates were made on the basis of the average sickness insurance program functioning among the 32 local unions of the ILGWU in New York City, which offers, as a rule, cash benefits for 13 week periods. Probably other factors influence this exceedingly

TABLE 1

Distribution of Disease among 19,750 Disability Claims, 1947, at the Union Health Center

(Estimated on basis of a random sample of 5,000 claims)

Disease Groups	*Per cent of Total*	*Average Number of Days Lost*	*Number of Patients*	*Total Number of Days Lost*
Heart and Circulatory System	15.2	51.7	3,000	155,000
Respiratory System	14.7	23.7	2,900	68,700
Digestive System	11.8	44.8	2,330	104,300
Genito-Urinary System	10.4	48.7	2,055	100,000
Bones and Organs of Movement	9.9	44.1	1,960	86,500
Neoplasms, malignant and non-malignant	5.7	50.3	1,125	56,000
Others	32 3	38.7	6,380	247,000
Total	100 0	41.4	19,750	818,100

low estimated sickness absenteeism, such as the seasonal nature of the industry. However, the figure seems to be valid for ladies garment workers, in view of the large number of employed persons covered and the constancy of this rate over a period of years.

MEDICAL SERVICE MINIMIZES EFFECT OF TOTAL AND PARTIAL DISABILITIES

The necessity for industry to bear the cost of industrial accidents and health hazards has become an accepted concept. The Union Health Center takes this concept one step further by demonstrating that the practice of preventive medicine for the maintenance of the health of workers can be done economically, efficiently, and to the advantage of labor, management and the community, at a nominal cost to industry.

From the experience of this institution it can be seen that where medical service can be extended to persons disabled by minor or major handicaps, far less loss of working time will ensue. A person who has suffered injury through accident or illness, or who is handicapped by chronic illness which disables him at periodic intervals, is prone to worry and to a feeling of insecurity which threatens his ability to work. Without the support of constant medical service, a minor physical handicap is too often aggravated by an exaggerated mental distress which causes a prolonged disability requiring extensive and expensive medical attention. Often, older age workers with physical impairments have more highly developed skills and are more dependable than the younger, healthier workers who feel more secure and less eager to maintain a position in the industry.

The attitude toward absenteeism on the part of labor and management clashes because management prefers to employ healthy workers to minimize the possibility of absenteeism, while labor tends to stress the need for keeping handicapped workers on the job. Absenteeism will be decreased by the use of health and welfare funds to provide medical care to maintain the health of workers.

REHABILITATION OF THE PHYSICALLY IMPAIRED

In the social security and compensable disability field there have been, unfortunately, large gaps in the provision of the necessary means of rehabilitation in chronic illnesses. This is evident in tuberculosis, arthritis, heart disease, and neurological conditions, all of which are now receiving the attention of the National Health Institutes.

In these conditions the costs of rehabilitation are beyond the capacity of ordinary wage earners. Also, the implications of the disabilities caused by the disease produce fear in the victim as well as in the employer. Thus, the

economic problem is so great that no individual worker or employer can solve it without assistance.

Legislation which will protect everyone is necessary, with the government offering aid for a program supporting the rehabilitation of citizens, so that there will be no fear of further compensation or economic drain upon the insurance company or the individual employer. In this way prejudice against the hiring of physically impaired workers may be overcome. Undue fear of compensation claims, which prevents the utilization of skilled handicapped workers, is to the detriment of the victim and the industry.

Today's trend is toward recognition of the principle that a worker's life and health are exposed to physical deterioration and destruction in industry, just as machinery is exposed to wear and tear, breakage, and depreciation. Perhaps there is no better impetus to the acceptance of this principle than the recent development of health and welfare programs in industry.

The mine workers have announced an extensive proposed program, and the ILGWU has a 35 year record of providing medical service and social security benefits for its members. Already numerous other unions are following this pattern. Three million workers in the United States are now protected by health and welfare funds involving 300 million dollars.

This trend in industry parallels a movement for state governments to take over some phases of social insurance through the extension of compensation laws. Rhode Island was the first state to compensate workers for disabilities due to non-occupational illnesses as well as for occupational disabilities. California and New Jersey have also taken this step.

The vital question before us today is: Will the states undertake, as Rhode Island has, complete (monopolistic) control of the administration and distribution of compensation for disability due to any sickness? Or, as in California and New Jersey, will the states supervise the work of existing insurance companies, industries, and trade unions which have well established social insurance programs?

Regardless of how these questions may be settled, it is evident that industry, both labor and management, are beginning to attack the problem effectively.

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REORGANIZATION OF THE HEALTH SERVICES OF THE FEDERAL GOVERNMENT

ON November 30, 1948, a Committee on Federal Medical Services, under the Chairmanship of Tracy S. Voorhees, made a report to Herbert Hoover, Chairman of the Commission on Organization of the Executive Branch of the Government, which has been briefly reviewed in our columns.[1] The subcommittee which dealt specifically with the problems of preventive medicine and public health was under the Chairmanship of Hugh R. Leavell, now Chairman of the Executive Board of the A.P.H.A.

It will be recalled that the Commission assumed the creation of a new Cabinet Department embracing health, education, and social security. It recommends that within this department there be created a National Bureau of Health with a professional career officer as Director General, reporting directly to the secretary of the department. It proposes within this bureau three major divisions dealing, respectively, with Medical Care, Public Health, and Research and Training.

The Medical Care Division would administer all general hospitals of the armed services and most station hospitals, except those at outlying posts[2]; the hospitals of the present Public Health Service; and St. Elizabeths Hospital; and would discharge all medical functions of the Veterans Administration, intramural and extramural.

The Public Health Division would include the functions of the Bureau of State Services, the quarantine activities, the Biologics Control Laboratory, and the Offices of Sanitation, Engineering, and Dentistry of the U. S. Public Health Service; and also the duties of the present Food and Drug Administration. Its major functions would be to administer grants-in-aid, to conduct a clearing house of information on all public health activities; and to regulate interstate commerce in foods, drugs, and medicines.

The Division of Research and Training would include the direction of the National Institutes of Health and administration of grants-in-aid in its field.[3] The

strongest emphasis is laid throughout the reports of the committee on the importance of prevention—not only for the benefit of the people as a whole but for reduction in the cost of medical care to the federal government itself, which now provides such care to between one-sixth and one-seventh of the population of the United States.

The scope of these recommendations is radical and far-reaching. They will no doubt be opposed—as all attempts to reorganize the machinery of federal government have always been opposed—by individuals and groups who fear damage to traditional power and prestige. They will, no doubt, be subject to criticism by others who believe that parts of the program are basically unsound. Such criticism should be welcomed, for no administrative proposal is ever perfect.

The problem is being studied by appropriate organs of our Association; and the A.P.H.A. will be duly represented when bills to implement the program are introduced and called for hearings. Meanwhile, the subject should be carefully considered by our membership, and comments submitted to our officers so that the wisest possible decisions may be reached.

In any case, Mr. Voorhees and his committee deserve our gratitude for their courageous and constructive attack on a serious and vital problem; and particularly, for their emphasis on the fact that the solution of that problem depends on prevention rather than cure and requires extension of the basic research on which progress in preventive medicine must rest.

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DOROTHEA LYNDE DIX

THERE is a strong movement on foot this spring to secure the election of Dorothea Lynde Dix to the Hall of Fame, when the choice of the next group of candidates for this honor takes place in 1950. It is a movement which should have the active support of the public health profession. Oliver Wendell Holmes, W. T. G. Morton, and Walter Reed are the only representatives of the health field in the present roster of the Hall.[1]

Dorothea Dix was the grandchild of an active and vigorous physician and apothecary. Her family lived in Boston, although she was born on a visit to Maine in 1802. After the death of her father, in 1821, she lived with her grandmother in Boston and tutored the children of William Ellery Channing (who was a major influence in her life), and organized a successful private school. In 1836 she suffered a complete physical and nervous collapse; but gradually recovered. In 1841, she volunteered to teach a class organized for women convicts in the East Cambridge jail; and this proved the turning point of her career.

In the jails and almshouses of this period, the criminal, the indigent, and the mentally diseased were indiscriminately huddled together under physical and psychological conditions of a barbarity which it is difficult for us to realize today. The revelation of conditions in East Cambridge roused Dorothea Dix to action.

Notebook in hand, she visited jails and almshouses from the Berkshires to Cape Cod and prepared a memorial to the Legislature calling attention to "the present state of insane persons confined within this Commonwealth, in cages, closets, cellars, stalls, pens; chained, naked, beaten with rods, and lashed into obedience." Her overwhelming mass of evidence and her fervid eloquence prevailed; and a bill was passed providing greatly increased facilities for the care of the insane in the Worcester Hospital.

As soon as this measure passed, Miss Dix began to extend her program to other states. She made a first hand study of conditions and presented memorials to the legislatures in New York, Rhode Island, New Jersey, Pennsylvania, Kentucky, Louisiana, Ohio, Tennessee, North Carolina, Alabama, Mississippi, and other states. She underwent untold hardships and hazards in her journeyings. Once when passing through a Michigan forest, she noted that the lad who was driving her had a brace of pistols which she took away from him to avoid violence. Soon thereafter, a man rushed into the road and demanded her purse. "Are you not ashamed to rob a woman?" she said, "I have but little money and that I want to defray my expenses in visiting prisons and poorhouses, and occasionally in giving to objects of charity." The expression of the highwayman changed and he became "deathly pale." He recognized the voice he had heard lecturing to prisoners in a Philadelphia penitentiary; and Miss Dix was obliged to force some money on him "to support you until you can get into honest employment."

Dorothea Dix's selfless passion for humanity triumphed over hostile legislatures as over menacing bandits. Eleven states, by 1850, had established or enlarged hospitals for the insane at her behest, including the Butler Hospital of Rhode Island and the first state hospital of New Jersey at Trenton.

After the decade of this whirlwind state campaign, Miss Dix began to cast her eyes on Washington and on June 27, 1848, a memorial prepared by her was presented to the Congress, calling for the appropriation of five million acres of public land, to be sold and the proceeds distributed among the states for the care of the insane. Shelved in the 1849 Session, this bill (with an increase to 12,500,000 acres of land) was reintroduced in 1850 and expanded to cover the indigent blind, deaf and dumb, as well as the indigent insane. In one session of this Congress the House passed the bill and the Senate defeated it; in a second session the process was reversed. In the 1854 Congress Miss Dix and her friends began the fight again. This time the bill passed both houses; only to be vetoed by President Franklin Pierce on the grounds—prophetic of much future discussion of similar issues—that "if Congress have power to make provision for indigent insane without the limits of this District, it has the same power to provide for the indigent who are not insane and thus to transfer to the federal government the charge of all the poor in all the States. . . . The fountains of charity will be dried up at home, and the several States, instead of bestowing their own means on the social wants of their own people, may themselves become humble suppliants for the bounty of the federal government, reversing their true relation to this Union."

It was a century later, in 1946, that the National Mental Health Act was passed, making the dreams of Dorothea Dix a reality on the federal level. What she had accomplished in the states, however, constituted probably the greatest forward step in the care of the insane ever accomplished by any individual on this continent.

The admission of Dorothea Lynde Dix to the Hall of Fame would do more than render just honor to a great American. It would call attention to the impor-

tance of carrying forward the banner which she raised a century ago; and at a moment when the advancement of the cause she served is particularly timely.

Progress in the field of mental hygiene in the United States has been curiously associated with fifty year cycles. It was at the end of the 18th century that Benjamin Rush, for the first time on this continent, preached the importance of reasonable and humane care and treatment of the insane. It was in the middle of the 19th century that Dorothea Dix began to make Rush's vision a reality. It was in the first decade of the 20th century that Clifford W. Beers reawakened public interest in this problem and founded the National Committee for Mental Hygiene. Today we are in a fourth period of great potential progress. The Second World War demonstrated the vital importance of mental hygiene through the revelation by draft examinations of the extent of the problem, and by the intelligent attitudes of the medical departments of the Armed Forces indicated the curability of a large proportion of emotional disabilities. Military experience of the First World War made us stop talking and begin doing something about venereal diseases. The Second World War, with the reënforcement of the National Mental Health Act, can accomplish the same sort of change in public attitudes with regard to the emotional disorders.

We know that our institutions for the care of advanced mental disease are better than those which Dorothea Dix and Clifford Beers denounced; but that they are still—for the most part—badly planned, undermanned, under-financed—disgraces to our civilization. We know that mental hygiene clinics and child guidance clinics are found here and there, doing the finest type of preventive work; but that the number of such essential facilities available is only a small fraction of what is needed to meet basic community needs.

Our best tribute to the memory of Dorothea Lynde Dix should be to give the cause of mental hygiene, which she promoted so gallantly and with such success, the support which will bring it to its appropriate place in our community program for the promotion of the public health.

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RESEARCH ON POLIOMYELITIS

THE National Foundation for Infantile Paralysis was organized, in 1938, primarily for the purpose of study and research in connection with the disease from which its great founder suffered. In the very next year, however, it entered the field of direct assistance in the actual care of patients suffering from poliomyelitis. In 1948, with the serious epidemic in certain areas (with 1,122 cases reported to the U. S. Public Health Service in the week of highest incidence), this aspect of the work of the Foundation was preëminent in the public eye. Between January and October the national headquarters, from its 50 per cent share of the March of Dimes campaign, provided about four million dollars for direct relief service to chapters whose local funds had been exhausted. This financial aid, the provision of hospital supplies and equipment, and the training and assignment of specialized personnel (doctors, nurses, nursing aides, physical therapists, etc.) have, of course, been invaluable in dealing with epidemics.

Of even greater potential importance, however, is the comprehensive program of basic research which the N.F.I.P. continues to foster and whose significance the general public is apt to overlook. In the last seven months of 1947 (for which full reports are now available) the Foundation provided grants of three-quarters of a million dollars to over 30 university and hospital laboratories for research projects. About one-third of this sum was for studies on the prevention and treatment of the aftereffects of the disease, two-thirds for research on the virus and its relations to the human and animal body. Under the latter heading are included projects dealing with diagnostic methods, with the differentiation of strains of the virus and with methods of spread of the disease on the one hand; and, on the other, with host problems, such as the reproduction of the virus in the body, the chemistry of reacting mammalian tissues, the response of nerve tissues to invasion, the mechanisms of immunization, the influence of genetic strains of experimental animals and their nutrition upon the processes involved. All of these studies should be of interest, and will contribute to fundamental scientific knowledge if not to the control of poliomyelitis; but through such a diversified program, somewhere, some day, the great moment will come. The key will be found when we know why the majority of persons in contact with the virus are unscathed while the minority suffer from clinical disease. This is the heart of the issue and it is a problem of biochemistry in a broad sense of the term.

When the secret is at last revealed, it will come as a result of such basic researches as the N.F.I.P. is now making possible.

Clearing House on Public Health Salary Information

Recommended Salary Minimums for Public Health Physicians *

The holding and procurement of competent personnel is one of the most difficult and crucial problems in public health administration today. An acute personnel shortage exists and low salaries paid professional public health workers by most public health agencies is a major factor responsible for this shortage.

Illustrative of the personnel shortage facing almost all health agencies is the experience of the American Public Health Association's Vocational Counseling and Placement Service. As of October 1, 1948, 766 vacant positions were listed in contrast to 91 applicants for these positions. A study by the U. S. Public Health Service [1] revealed 1,847 vacancies among health agencies in 12 states in November, 1947, and meantime the situation appears to have grown worse and not better. The field of public health has been expanding rapidly, creating a large demand for additional personnel, and this expansion will continue to aggravate the personnel shortage.

In spite of the salary increases granted recently to some agencies, many public health workers are worse off now than before the war. It has been shown in one study [2] that it requires $9,819 in 1948 to buy what $5,000 would buy in 1939 for a family of four; and according to the *Bureau of Labor Statistics Consumers Index*,[3] the cost of living has increased from August 15, 1939, to August 15, 1948, by 76 per cent.

The proportionate increase of salaries of professional public health workers has been much less than this. The figures vary from place to place, but the following examples are typical of the discrepancy. In one state with a good public health program, the salaries of medical health officers increased only 37 per cent between 1940 and 1948.[4] In another state the salaries of all state employees increased only 28 per cent between 1939 and 1948.[5] Obviously the purchasing power of these salaries decreased during those years; meantime, in these states as in most states, the public health program has steadily grown, which means the professional workers are carrying heavier responsibility for less real income.

In contrast to these inadequate salary increases, wage earnings in manufacturing industries increased by 100 per cent and the national per capita income by 140 per cent between 1940 and 1948.

It is generally recognized that a great discrepancy exists between the incomes of full-time public health physicians and those in private practice, although no substantiated figures are available for comparison. It is significant that the average asking salary of physicians seeking work with the American Public Health Association's Vocational Counseling and Placement Service is considerably higher than the average salary offered. It is to be noted that most graduate physicians go into private practice rather than public health work.

The median salary of full-time public health physicians in the state agencies (exclusive of state health officers) in 1948 fell in the range $6,000 to $6,400 [6]; and those in local health agencies in the range of $6,480 to $6,720.[7] These salaries appear to be much less than the net annual income of a good general

* Approved by the Executive Board of the American Public Health Association, January 28, 1949.

practitioner in most areas in the United States.

However, the experienced public health physician with special training (an M.P.H. academic degree) and/or demonstrated ability to administer public health programs is now recognized as a medical specialist. As evidence of this, the armed forces and the U. S. Public Health Service established an Interim Board to recognize public health as a specialty of medicine. An American Board of Preventive Medicine and Public Health has been set up. The salary of a public health physician should reflect his specialty training and attainments.

Legal restrictions in many governmental jurisdictions freeze the medical health officer in a salary range with other department heads (or sometimes below them), few of whom must have the training equivalent to that of a qualified health officer, with salaries of subordinate professional personnel below that of the health officer. Thus the median salary of municipal health officers ranged from $3,900 in cities of 10,000 to 25,000 population to $10,000 in cities over 500,000 according to the *Municipal Year Book 1948*.[8] In each of the six population groups in that study the median salary of health officers was considerably below the median salary of the superintendent of schools, ranging from 64 per cent in cities of 250,000 to 500,000 to 79 per cent in cities over 500,000 population. It is essential that salary boards and appropriating bodies recognize in their salary schedules the special training, experience, and competence required of professional public health workers.

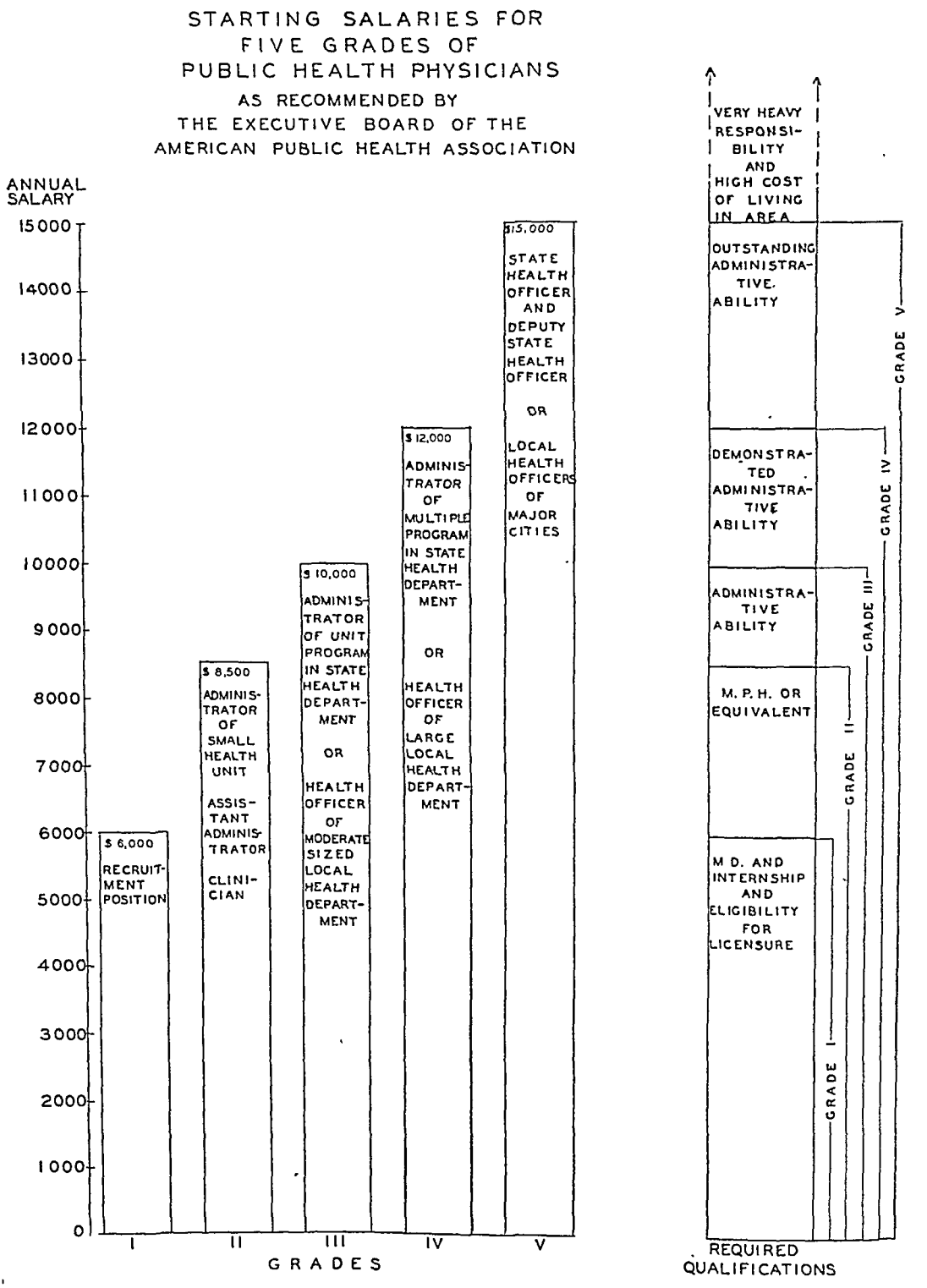
For other but related reasons public health positions often lack attractiveness. Salary increments, when provided, have not exceeded 5 years generally, which may result in the employee, who has reached the maximum salary, looking elsewhere for a position. His value to the organization, however, usually will increase if he stays with an agency well beyond the 5 year period. Security of tenure for competent personnel, retirement plans, sick leave, and vacation periods have been inadequate in many instances.

An effective recruiting program is essential to fill existing vacancies and positions being newly established, but such a program can succeed in substantial measure only if salaries and related prerequisites are commensurate with the training and experience required of the employee and bear a reasonable relationship to the earnings available in private practice or other full-time employment by similarly qualified persons. Lacking this, not only will recruitment be inadequate, but competent personnel will continue to desert public health for other more remunerative positions, as they now are doing.

The Executive Board of the American Public Health Association, well aware that the public is faced with the urgent necessity of holding and recruiting competent personnel for public health positions, and that improvement in salaries paid and personnel practices is essential to achieve these needs, has recognized the facts set forth above and has endorsed the recommendations and graphic presentation which were prepared by the Subcommittee on Salary Study and approved by the Committee on Professional Education.

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ADOPTED JANUARY 28, 1949

RECOMMENDED SALARY MINIMUMS FOR FIVE GRADES OF PUBLIC HEALTH PHYSICIANS

The compensation for physicians employed full time by health agencies in the United States in 1948 should be adjusted to not less than the following scales which take into account the degree of responsibility in various positions, the training and experience required of the physicians, the necessity for maintaining professional standing in a community, and the increasing cost of living.

1. Physicians employed in a full-time position for training in public health should receive an annual salary of at least $6,000 if they have an M.D. degree from a recognized medical school, have completed an internship, and are eligible for licensure in the state in which they work.

2. Physicians employed in a full-time position as a clinician, health officer of a small unit, or an assistant administrator, should receive an annual salary of at least $8,500 if they have the following basic qualifications:

a. A degree Doctor of Medicine from a recognized medical school.

b. One year of internship and eligibility for licensure.

c. A Master's degree in Public Health (which includes some field experience) or demonstrated knowledge and experience equivalent to that represented by this degree.

3. Physicians with these basic qualifications who in their past experience have shown administrative ability should receive an annual salary of at least $10,000 if they carry the responsibility for administering a single program in a state health agency or a large local health agency (e.g., program for cancer control, mental hygiene, tuberculosis, or crippled children, etc.); or serve as health officer of a moderate sized local health unit, or carry equivalent responsibility.

4. Physicians with the basic qualifications and demonstrated ability to administer responsible public health programs should receive an annual salary of at least $12,000 if they carry heavy responsibility such as administering multiple programs in a state health agency (e.g., directors of local health administration, preventable disease control); or serve as health officer of a large local health unit, or carry equivalent responsibility.

5. Physicians with these basic qualifications and outstanding demonstrated ability to administer public health programs should receive an annual salary of at least $15,000 to $20,000 if they carry great responsibility in positions, such as the health officers and deputies of our states, major cities, and very large local units carry.

In those areas in the United States where the cost of living is higher and/or the public health physicians carry unusually heavy responsibility, higher entrance salary levels are recommended. Salaries, when adequate, should be adjusted proportionately as the cost of living materially changes.

Attention is directed to the necessity for pay increments to recognize the increasing value of service usually given to an organization by public health physicians holding positions in which no further advancement is possible as their length of service increases. Most plans today reach a maximum automatically within a few years. A graded plan of pay increments which extends throughout the period of employment should be adopted for meritorious service.

All official agencies should have an adequate merit system for the selection and promotion of competent personnel and the protection of their tenure of employment, and for the removal of incompetent personnel. Adequate plans for retirement, vacation and sick leave, and an adequate scale of payment for travel and other expenses are essential.

The Executive Board recognizes that the salaries recommended above are considerably higher than the medians now paid for comparable positions; however, the Board is well aware of the fact that the better qualified candidates for positions in public health are demanding salaries equivalent to or in excess of those recommended, and that an increasing number of employers are offering such salaries.

A STATEMENT ON THE RELATIONSHIPS OF THE VOLUNTARY HEALTH AGENCIES TO THE SCHOOL HEALTH PROGRAM *

SEVERAL groups either legally or through common interest share in the school health program. The growth of the program and of the health knowledge upon which it is based is almost staggering. Only through the effective relationship of all groups with important contributions to make, can the school health program approach its goal the best possible health for all children now and throughout their lives.

School authorities by law carry the ultimate responsibility of all programs conducted in the schools. This includes the school health program. Since the control of communicable disease is a part of every school program and is frequently by law the responsibility of the public health department, and since in some states departments of health are responsible by law for medical examinations and follow-up, the latter to the extent set by local statute shares the responsibility of the school health program.

There are many groups without legal responsibility for the school health program which nevertheless have a vital interest in and contribution to make, in whole or in part, to the school health program. Important among these are the medical and dental professions which have through the years given impetus and sound advice toward the continued improvement of school health programs.

Another essential group is the voluntary agency composed of interested citizens, both lay and professional. These agencies are frequently concerned with some special aspect of health. This interest, if properly placed and properly handled, has a part in the total school health program. The aim of the voluntary health agency interested in the school age child is to help make possible for boys and girls lives of usefulness unhampered by illness or poor health. The effectiveness of the voluntary health agency's assistance to schools depends to a large degree upon the mutual understanding of the responsibilities, limitations, and contributions peculiar to each.

A. *Guiding principles in interrelationships between voluntary health agencies and the schools:*

1. School authorities have the legal responsibility for all school programs. The unique function of the school is education.
2. Voluntary health agencies accept this. They also recognize that school age is an excellent learning age. Moreover, their money comes from the community with the trust that it be spent to the best advantage. For these three reasons they strive, logically, to have what they consider important learning material included in this age period. School administrators should recognize that voluntary health agencies have the responsibility and the right to offer and to urge the use of their services. Voluntary health agencies should recognize that the school authorities have the choice of accepting or refusing these services. A coöperative attitude on the part of both parties leads to

* This report involved the coöperative efforts of the School Health Section of the American Public Health Association and the American Association for Health, Physical Education, and Recreation. The statement was prepared by Mrs. Elizabeth M. Semenoff, Director, School Health Education Department, District of Columbia Tuberculosis Association, Washington, D. C., and Ben W. Miller, former Executive Secretary, AAHPER. A request for the coöperative project was made by Mr. Miller and was approved by the School Health Section Council in November, 1946. The appointment of Mrs. Semenoff as a member and representative of the Section to work with Mr. Miller was approved in January, 1947, by the Executive Board of the American Public Health Association. The statement was presented in October, 1947, and approved the following month by the School Health Section Council of the A.P.H.A. In January, 1948, the statement was approved via mail ballot by the Board of Directors of the AAHPER.

the most effective use of the services offered.

3. It is very desirable that personnel working with the schools in any phase of education for health be acquainted with the problems of school administration and classroom instruction and have an understanding of acceptable policies and practices in health education.
4. While voluntary health agencies may contribute to any part of the school health program their most valuable services are usually in the field of health instruction.
5. All efforts in the health instruction of children in school must be channeled through the regularly constituted educational authorities, in coöperation with any other agencies which may also be concerned. This should apply to any situation whether on the federal, state, or local level.
6. The voluntary health agency should never attempt to superimpose a fixed plan on any individual school system, or part of the system, but should work with school personnel for the desired goal.
7. Health education materials offered by voluntary health agencies for the elementary grades must be in harmony with the mental and emotional stage of development of the children concerned. Only those public health problems which touch the child's daily health practices such as the use of quarantine in the control of communicable diseases in children come within his range of interest and understanding. Learning experiences which have direct bearing on his personal health are basically important for these grades. The child in these years is interested in health, not disease
8. In the secondary schools education related to special diseases or special health problems should be integrated into the health course and into such general courses as human biology and general science. It is not acceptable educational practice that programs dealing with specific health problems such as nutrition, cancer, tuberculosis, venereal disease, and first aid be set up as a separate or extra subject. So isolated, one aspect of health has little or no chance of assuming its proper place in the individual's total health learning.
9. The voluntary agency must have a clear understanding with the educational authorities as to suitability and distribution to school personnel of materials they provide. Sound educational policy involves mutual agreement that the provision of educational materials to schools by voluntary agencies be kept separate from their direct fund-raising campaigns.
10. The voluntary health agency should be familiar with the extent and quality of the teachers' education in health.

B. *Types of aid acceptable to school authorities which voluntary agencies can give to the school health program:*

1. Up to date, accurate information on the agency's special health interests. Such assistance should be not only welcomed but asked for by school personnel, who cannot expect to be able to keep up with all phases of the rapidly increasing health knowledge.
2. Teaching tools, such as pamphlets, posters, charts, graphs, films, film strips and slides, exhibits. Such material must be accurate, clear in concept, attractive, and effective, with its purpose solely educational.
3. Suggested teaching units. It is recommended that in the preparation of teaching units the voluntary health agency make use of experienced teachers so that the material is adjusted properly to grade levels and needs.
4. *Consultation services.*
5. Personnel assigned to educational authorities to work under their jurisdiction.
6. Assistance in the formation of school health councils and coördination of the school health councils with the community health council.
7. Qualified personnel provided to demonstrate a health education program or part thereof, to experiment in new types of programs or to fill the temporary lack of adequate school personnel.
8. Coöperation in the inservice course in health education either in the form of funds or personnel. Such courses should be developed coöperatively with school authorities, especially those having to do with teacher preparation and certification.
9. Scholarships for education in health education.
10. Financial assistance and/or leadership in special projects, such as workshops.
11. Individual conferences with teachers possibly including demonstration teaching of selected health units by a qualified health educator.
12. Guidance in helping teachers to understand classroom observations and/or measurements, non-diagnostic or medical

in nature and in helping to detect, and refer children with signs of impaired health.

13. Guidance for teachers or parents in learning the use of non-medical non-diagnostic screening tests, such as vision and hearing testing, and weighing and measuring.
14. Educational presentations to classroom groups, supplementary or summarizing in nature. These are not to take the place of classroom teaching, which is not to be provided by the voluntary agency except for possible demonstration teaching of a health lesson.
15. Parent health education.
16. Leadership in parent or teacher study groups.
17. Information of general advances in health knowledge and practice for school administrators and teachers.
18. Securing the interest and coöperation of other community groups to participate in the school health program, e.g., conferences and medical and/or educational presentations for teacher groups.
19. Interpreting school health program and unmet needs to the community and stimulating action if desirable.

Credit Lines

THE DIAMOND JUBILEE OF AMERICAN NURSING

Those concerned with the recruitment of public health personnel, and in particular with the nursing shortage, will have noted the well planned effort under the sponsorship of the American Nurses Association for the Diamond Jubilee of Nursing, signalizing the 75th anniversary of professional nursing in the United States. A week in November was set aside for public attention to this subject.

Recruitment for public health nursing is not standardized or stereotyped and in view of the fact that this represents the best financed recruitment effort in public health, the methods employed are worthy of note. Further information may be obtained from the American Nurses Association, 1790 Broadway, New York 19.

A national committee of sponsors for the Diamond Jubilee included the President of the United States, the President of the Rockefeller Foundation, a series of university presidents, the presidents of large professional societies, and other American leaders, including the Surgeons General and other headline names. The information was published with a build-up of Linda Richards, "America's First Professional Nurse" who graduated in nursing from the New England Hospital for Women and Children, Boston, in 1873. Her career as organizer of nursing schools and leader of nursing progress is chronologically presented to the time of her death in 1930.

Accompanying this brochure are three fact sheets, one on legal control, one on nursing distribution, and one on economic security. These are presented in question and answer form and should be provocative to other professions seeking to recruit personnel through similar devices.

Supplementing the foregoing is a series of four pamphlets entitled, 1. "An appeal for Public Coöperation to Resolve the Nursing Crisis"; 2. "American Health Standards Demand Legal Control of Nursing"; 3. "Will You Get Your Share of Professional Nursing Care?"; 4. "A Crisis in Nursing Care Threatens the American People."

Several posters were prepared for the occasion, together with a suggested bibliography on nursing and addresses by various leaders, including Miss Pearl McIver, President of the American Nurses Association.

All in all this has been a creditable approach which ought to have a critical evaluation in the light of results produced so that subsequent efforts of this kind may be even more effective.

FROM A WORKER'S IDEA TO A NATIONAL SAFETY CLUB

The story of the Wise Owls Club has a new gimmick. It didn't originate in a high powered publicity office but in the mind of a grinder in the cleaning room of a foundry—Joe Folks by name, supposedly. Knowing how the Caterpillar Club made the army air force safety conscious, he suggested to the American Car and Foundry Company for which he works, that the idea could be adapted to the peacetime problems of eye safety in industry.

The safety department picked up the idea, designed a small gold owl wearing goggles and found 76 men in ACF plants in six states as charter members, all of whom had saved an eye because of wearing eye goggles in accidents that would

otherwise have been fatal to one or both eyes. This was in April, 1947. By August, 1948, 66 men had been added as charter members at a net saving in workmen's compensation of more than $150,000. In the meantime, the cost of the program was only $33,000.

At this point, American Car and Foundry decided the idea was too good to hoard and turned it over to the National Society for the Prevention of Blindness which is now spreading Wise Owl Clubs throughout industry. It supplies membership pins and certificates for charter members as they become eligible for $2.00 each. For information about a *Wise Owls Club in Your Plant,* write National Society for the Prevention of Blindness, 1790 Broadway, New York 19.

PAMPHLET ON BRUCELLOSIS

The National Society for Crippled Children and Adults does not hold to the conventional definition of "crippling." It has recently published a pamphlet "The Crippler in Disguise" which is the story of Undulant Fever in America. The material is of good quality, is well illustrated and should be widely known to health educators and health officers. National Society for Crippled Children and Adults, 11 South La Salle St., Chicago 3.

FLUORIDES AND WATER SUPPLIES

The pros and cons plus a good historical outline of the addition of fluorides to drinking water for the prevention of caries appears in "Shall Fluoride Be Added to Public Water Supplies?" by Harry A. Faber, in the November, 1948 issue of *Water & Sewage Works.* Mr. Faber doesn't attempt to answer the question, but he gives information which may help you in reaching a decision if you are confronted with that necessity.

ACCIDENT PREVENTION IN HOSPITALS

Hospitals also have accidents, it appears. To head them off the National Safety Council and the Council on Planning and Plant Operation of the American Hospital Association through a safety committee have developed a cooperative program. For an annual fee of $5.00 to the National Safety Council, member hospitals of the Association will be provided monthly with supplies of posters, safety instruction cards, and other safety program materials, as well as a safety newsletter. Its author is Dorothy Pellenz of Crouse-Irving Hospital, Syracuse, N. Y., who gathers news and ideas from hospital administrators throughout the country.

The subscribing hospital in turn agrees to furnish statistics on accidents to the National Safety Council for analysis and measuring of program results and for possible reduction in employee compensation insurance rates.

GETTING UNIVERSAL CHEST X-RAYS

Since 1942 the New Jersey State Health Department has been carrying on free industrial and community x-ray surveys in which nearly 400,000 persons have been x-rayed. But it has a population of over 4½ million and more than a million gainfully employed industrial workers.

To spread information on how all may be x-rayed is the purpose of *X-Ray: the Picture of Health.* A well put together pamphlet tells the extent of tuberculosis, its incidence in the productive age group, and gives information as to how an industry or a community may have an x-ray survey. A six page list of industries that have already had surveys is included to encourage those who would not "be the first by whom the new are tried."

HAWAII'S FUTURE HEALTH PICTURE

In a well produced booklet of about 75 pages, the recommendations of Hawaii's 14 Postwar Planning Committees on Health are published by the

Public Health Committee of the Honolulu Chamber of Commerce. In 8 chapters covering various phases of public health activities extensive recommendations, totaling 173 in one chapter, for immediate action and for long-range objectives are given. Public Health Committee, Chamber of Commerce, Honolulu, Hawaii.

NPC PACKET PACKS A WALLOP

If you do not know the monthly publicity packet, with comments, of the National Publicity Council (130 East 22nd St., New York 10), the one of November 12 is a good one with which to start. About half a dozen items selected from Florida and Seattle and way stations between are excellent illustrations of getting your message across effectively —and simply.

MINNESOTA LEGISLATURE STUDIES COUNTY HEALTH UNIT PLAN

As an earnest of the interest among Minnesota citizens in developing a county health unit plan of public health service the Legislative Research Committee in November, 1948, published *County Unit Health Plan.* This is a joint committee of the legislature meeting quarterly and giving advance consideration to problems to be confronted in the next legislature.

Minnesota does not now have a county or district health unit law but one has been introduced in the current legislature. The Legislative Research Committee's report, which summarizes the health unit situation in the country generally, recognizes the need for better health service in the state. Its report poses two questions: Will the benefits match the cost? If so, where shall the expansion occur? The second question presupposes a choice between the expansion of state health districts into direct service units or the development of local health units.

The report is geared most directly to the financial situation. It points out the expensiveness of the Rochester-Olmstead County Health Department, which is really a loose federation of the public and private health agencies in the area, without noting that the entire county population is less than 40,000 and without suggesting the possibility of coöperative health services with other counties. It also apparently accepts as static the situation in St. Louis County where the organized county health department serves only one-fifth of the population of about 40,000 persons excluding the City of Duluth and all other organized townships and municipalities that have not requested inclusion in the county's program.

In this connection it needs to be pointed out once more that to say as this report does, that the 40,000 persons served by the St. Louis County unit is pretty close to minimum A.P.H.A. standards, is to misread the *Local Health Units for the Nation* report. The 50,000 minimum population is only one criterion; at least an equally important one is that one health unit should serve both the rural and urban areas of a county or counties for the very obvious reasons that trade and communication between rural and urban areas is constant, that expensive overlapping and confusion of services can be prevented, and that inequalities in urban and rural incomes can be balanced.

HEALTH UNLIMITED APPEARS

In October, *Health Unlimited* was born in the San Francisco Health Department as a quarterly publication to "help keep the public as well as professional persons informed on the best health practices, current research in the health field, and up to date knowledge about the city health resources, services, and facilities." The new baby was named by sanitarian Albert Martin competing with 169 entries by other staff members. The lead article of the first issue is Working Together in Public Health,

with joint authorship of the editorial board of 6 staff members. Looks as though coöperation were to be San Francisco's watchword.

A REPORT OF WORK, NOT NAMES

The report of the activities of the Indiana State Health Department for the two years 1946–1948 is notable for several things:

1. It has no long list of names and titles. One wouldn't even suspect that Leroy E. Burney, M.D., is the State Health Officer.

2. It is not afraid of the facts. Pictures and figures show Indiana in relation to other states—40th among 48 states in per capita state appropriations to health departments and less than 25 per cent of the population covered by full-time local health service.

3. The report is imaginatively illustrated and very readable.

POLIOMYELITIS TEACHING MATERIALS

Health workers report finding the *Poliomyelitis Science Unit,* which includes a text for high school students, a teachers' guide, and film slides, useful in educating the public.

Copies for quantity distribution are available without charge from the Education Service, National Foundation for Infantile Paralysis, 120 Broadway, New York 5, N. Y.

MISSISSIPPI LEADS IN RECRUITING DOCTORS FOR RURAL AREAS

The Mississippi Legislature of 1946 established a program of providing loans for young men and women in Mississippi to cover the expense of their medical education. The loans provide $1,250 per school year, or a maximum of $5,000 in four years. Applicants who are acceptable for enrollment in an approved medical school may undertake contracts to return after completion of a general rotating internship to a rural area approved by the State Medical Education Board, where the applicant must remain for a minimum period of two years. The loan, which bears 4 per cent interest, is discounted at 20 per cent of the total loan per year of medical practice in a rural area, so that if the young physician remains for five years the entire amount of his loan, plus interest, is credited to him. However, at the end of two years he may pay off 60 per cent of his loan, plus interest, and be free of contract obligations.

The Board supervising the loan program is made up of the Dean of the University School of Medicine at Oxford; the Executive Officer of the Mississippi State Board of Health; President of the Mississippi State Medical Association; a past president of the Federation of Women's Clubs in Mississippi; and a local superintendent of schools. Further details may be obtained from a brochure, *What the Medical Education Program Means to Mississippi,* Mississippi State Medical Education Board, Jackson.

CONNECTICUT'S FILM CATALOG

The film catalog of the Connecticut State Health Department is an attractive booklet called Health Educational Services. In addition to listing some 100 films, it also gives information about other health education services—slide-films, posters, exhibits, leaflets, and speakers. Bureau of Public Health Information, Connecticut State Department of Health, P. O., Station A, Box K, Hartford, Conn.

ALERTING THE POTENTIAL DIABETIC

In *Harper's Magazine* for January, C. Lester Walker, in "A Million Unknown Diabetics," brings to the general reading public the currently accepted information about diabetes and the possible preventive measures that should be universally known. For the known diabetic he says, "the diabetic today can live really strenuously" citing Mayor La Guardia

and tennis champion William F. Talbert in proof.

For the unknown diabetic he gives the warning of the American Diabetes Association:

Have a blood-sugar test made if: (a) You are 40 and overweight; (b) Any one of your ancestors ever had diabetes. —*Harper's Magazine*, 49 E. 33rd St., New York.

THE RED CROSS SUMMARIZES ITS VANPORT EXPERIENCE

The Red Cross, in summarizing its experience with the disastrous Vanport (Ore.) flood of last spring, found that all its neat disaster plans were not nearly enough. In "What We Learned When Vanport Vanished," E. A. Valentine, disaster Chairman of the Portland-Multnomah County Chapter, outlines the plans that were inadequate for the benefit of other disaster committees who may also have gaps in their planning. The one thing we find missing in this summary is any attention to the preventive aspects—namely, a concern with the bad building conditions that made the Vanport flood much more disastrous than it need have been even taking account of the Columbia River's worst rampage in 50 years. But perhaps it is unfair to expect a disaster organization to concern itself intimately with basic community conditions.

ANNUAL REPORTS

Boston's Health in 1947—This 76th annual report of the Boston City Health Department, with photographs of many of Boston's notable buildings, was prepared to coincide with A.P.H.A.'s 76th annual meeting in Boston in November, 1948. It is dedicated to the Association and reviews public health progress in the city during the 25 years since the Association last met in Boston. It is no surprise that heart disease and cancer in that order were the two leading causes of death both in 1923 and 1947. But it may be a sign of the times that accidents and diabetes were among the leading 10 in 1947 but not in 1923, and that alcoholism, among the leading 10 in 1923, had dropped out of this group by 1947.

TEXARKANA-BOWIE TAKE A BOW!

For the third successive year, Texarkana-Bowie County Health Unit has been the first one to submit its *Evaluation Schedule* in the Association's Annual Evaluation Project. W. L. Kitchens, M.D., is the Director of the Health Unit which covers a population of 72,400. The Chairman of the Health Committee is W. B. Harrell, M.D. Each year the *Schedule* has arrived in the Association office early in February. A good job is done in presenting the data and progress is shown in the use of the *Schedule*.

WORTH ACQUIRING

Aging: Family Health Series—Guide for Public Health Nurses No. 8—As with others in this series, this guide was prepared by the nurses of the Department of Educational Nursing of the Community Service Society of New York to suggest to public health nurses ways and means of working with older people. Community Service Society of New York, 105 East 22nd St., New York 10, N. Y., *15 cents* for orders under 100; *12 cents* plus postage for 100 or more.

Dihydrostreptomycin: A New Antibiotic in the Treatment of Tuberculosis—Squibb's professional service department has prepared a brief pamphlet primarily for physicians giving the facts about dihydrostreptomycin—why it was chosen, what clinical trials it has had, what forms of tuberculosis it affects, its dosage and administration, tolerance, and, finally, a number of precautions. This should be in a library of antibiotics with reference to tuberculosis. E. R. Squibb & Sons, 745 Fifth Avenue, New York.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Voluntary Medical Care Insurance in the United States—*By Franz Goldmann. New York: Columbia University Press,* 1948. 228 pp. Price, $3.00.

The status of voluntary prepayment plans is, perhaps, the most important single issue in the turbulent arena of current medical care planning. In this study—designed as a companion volume to the author's *Public Medical Care*—one of the country's leading experts has undertaken the kind of careful analysis and appraisal that must underlie any national policy in the health services.

In this book, Dr. Goldmann has presented, first, an objective account of principles and prerequisites in the operation of voluntary medical care insurance plans. This constitutes one of the best summarizations now available of all related factors—actuarial, administrative, and medical. Particularly appropriate to current interest in the *quality* of organized service is the brief section on "Adequacy of Medical Care."

Succeeding chapters trace the origins and development of voluntary efforts in medical care, from the mutual benefit associations of the Civil War period to the present vast extension of Blue Cross and the complex organization of New York's Health Insurance Plan. The attitudes of those professional and lay organizations which have influenced the movement are fairly summarized. Each general type of voluntary plan—cash indemnity, hospital and physician's services, group practice, coöperatives—is then analyzed in terms of administration, service, and costs.

The book is completed by an overall estimation of the limitations and potentialities of voluntary plans. The author points out that the historical contributions of the voluntary approach have been inestimable, and that the combination of group prepayment and group practice must have a particularly significant place in any national program of medical care. He concludes, however, that the limited coverage, the restricted benefits, and the high costs of innumerable private plans preclude any serious expectation that the full needs of the nation can be met through such unaided efforts.

The presentation suffers from a profusion of statistical data in the text that might have been organized into tables or charts. One wishes, also, that the author had more forcefully applied his own experience with voluntary plan participation in European health insurance programs to the current issues facing the American people.

EDWARD S. ROGERS

Social Denmark—*A Survey of the Danish Social Legislation. Edited and published by Socialt Tidsskrift Copenhagen,* 1947. xv + 475 pp. No price given.

Denmark's efforts to increase the social security of its population have done much to make its name respected among the nations of the world. As in many other countries, Danish social legislation has grown out of old public assistance laws that had their roots in ecclesiastical and lay charities. The history of this legislation falls into three periods: the first, from the Reformation to about 1891, when a New Poor Law and an Old Age Pensions Act were passed; the second, from 1891 to 1933, during which most of the features that characterize the present situation were introduced; and

the third period, dating from 1933, when the existing social legislation was codified in one inclusive social security system, which has been modified only slightly since then.

The first sphere to be put on a government regulated and supported basis was sickness insurance, when the Rigsdag in 1892 passed a law concerning approved sick clubs. In some very important respects Danish sickness insurance is different from most other types. One of these is the fact that the administration is in the hands of autonomous, but governmentally regulated clubs. Another is the essentially voluntary character of membership. It should be remembered, however, that general prosperity in the Danish community has been greater than in most other European countries.

In addition to sickness insurance, the social security system includes old age and invalidity insurance, workmen's compensation, unemployment insurance, public assistance, child welfare legislation, maternity aid legislation, aid to widows and orphans, legislation organizing and regulating the labor market, and aid for housing and town planning. The volume under review gives an excellent picture of this comprehensive system. While the standard of living in Denmark was reduced during the war, it was possible to maintain the general system of social legislation. This survey of Danish experience is a definitely worth while contribution to an international exchange of social knowledge and experience. The volume is illustrated and has an extensive bibliography. GEORGE ROSEN

Public Health Engineering. Volume I—*By Earle B. Phelps and collaborating authors. New York: Wiley,* 1948. 644 pp. Price, $7.50.

This book is one of two volumes presenting a rather complete review of man's environment. The approach is made on the basis of the effect on man's health of the air he breathes and uses, the water he drinks and wastes, and the food he eats and wastes, and emphasizes some significant facts concerning control measures which can be instituted to create an environment favorable to man. The air and water "contacts" are discussed in Volume I. The food "contact" is to be published as Volume II. The field of public health engineering is presented as that field in which "engineering principles and techniques based on biological data are employed in the practice of public health." "It deals essentially with control of the environment with those modifications and protective and preventive measures that have been found desirable or necessary for promoting optimum conditions for health and well being."

The author states frankly in his preface that the book "is written primarily for the engineer who presumably has learned how to design and build, to teach him, in the light of present-day knowledge of sanitary science, what to design and build and why." It should be added that he should have had some experience and a certain orientation in the public health field generally to be able to use the book to greatest advantage. A student or a person new in the public health field might have some difficulty in accepting the simplified grouping of environment under three "contacts." Probably he would be surprised to find a discussion of bedbugs, lice, and fleas in a chapter on insect control under Part I—The Air Contact.

This volume deserves a place in the public health library of every health department along with other notable books on public health practice, such as those written by Rosenau, Dunham, and Emerson. It fills in many important items involving sanitation barely discussed in the books mentioned. It brings into one reference a compendium of principles of sanitary science and useful data, including some formulas

that could only be obtained heretofore by extensive search in many separate texts. Pertinent references needed to complete a more exhaustive study of engineering *per se* are listed after most of the chapters.

Collaborators in the preparation of this volume included Dr. Harry D. Pratt, Scientist, U.S.P.H.S., who wrote the chapter on Insects and Insect Control; Professor John M. Henderson, School of Public Health, Columbia University, who revised the section dealing with drainage; and Professor C. J. Velz, Manhattan College, who collaborated in the preparation of the whole of Part II—The Water Contact.

WILLIAM T. INGRAM

Principles of Healthful Living: For the Individual and the Community—*By Edgar F. Van Buskirk. Edited by Carl L. Kline. New York: The Dryden Press.* 474 pp. Price, $3.50.

In this revised edition of the work by the same title, published in 1938, the author has used the same functional approach and manner of presentation. The content has been brought up-to-date and an entire new section has been added devoted to family and community health.

In this volume, designed primarily for first and second year college students, the author discusses principles of healthful living from the viewpoint of the individual and that of the total community. The first part includes reference to basic concepts in the interest of giving the student an introductory perspective and understanding of the general nature and scope of the study as a whole. In part two. composed of eleven chapters, the individual aspects of healthful living are stressed, with particular reference to the practical everyday health needs of the individual student.

Part three contains eight chapters, with emphasis upon group health aspects of family and community living: mental health, mental handicaps, progress of medicine, family health, disease control in family and community, and public health agencies. In the appendix, the author has listed a good bibliography of one hundred books found useful for supplementary reading.

This revised volume is recommended for use with college students and should be of interest to educators and public health workers as a general reference.

A. HELEN MARTIKAINEN

Pathology—*Edited by W. A. D. Anderson. St. Louis: Mosby,* 1948. 1453 pp. 1183 illus. Price, $15.00.

Public health workers need a dependable source of reference in the broad field of pathology and are frequently interested not only in the more familiar aspects of pathology but in the aspects of exotic diseases. The reviewer has had an opportunity to test the information available in this magnificent volume in a dozen areas with exceptionally satisfactory results. Especially outstanding are the chapters on Rickettsial and Viral Diseases, on Fungus Infections, on Protozoal and Helminthic Infections, and on Vitamins and Deficiency Diseases. Another outstanding chapter is that on Physical Agents in the Causation of Injury and Disease, covering some of the medicolegal aspects important to physicians in public health. Throughout the volume the references include many recent sources, and the illustrations, including a number in color, are superb. The volume is highly recommended.

REGINALD M. ATWATER

The Leptospiroses—*By P. H. van Thiel. Leiden, Netherlands: Universitaire Pers Leiden,* 1948. 231 pp. Price, 16.50 florins.

This book contains the most carefully detailed and complete review and summary of the present-day knowledge

on the Leptospirae and the diseases caused by them since the monograph by Walch-Sorgdrager which appeared in 1939. In 22 chapters the author discusses the morphology, classification, diagnosis, pathogenesis, and clinical and therapeutic aspects of the leptospiroses. Particularly the presentation of the basic epidemiological features is well documented by judicious selection of the important facts. The presentation is thorough and critical. Those coming in contact with the leptospiroses realize the multitude of unsolved problems; however, a surprising number of solutions will be found in this treatise by van Thiel.

A remarkable number of concepts are touched upon and appraised. Therefore, the content of the text will be useful to the research worker. Excellent illustrations and summary tables are added to the text.

The manuscript was prepared during the war years. References to the very recent literature are not included, although the bibliography, which does not record articles already listed in older monographs, covers 21 pages. The defense mechanism of the host against Leptospira is not discussed.

K. F. MEYER

Advances in Pediatrics, Vol. 3—*Editorial Board: S. Z. Levine, Allan M. Butler, L. Emmett Holt, Jr., and A. Ashley Weech. New York: Interscience Publishers,* 1948. 363 pp. Price, $7.50.

This is the second post-war issue of *Advances in Pediatrics,* and like the two preceding volumes it presents a collection of authoritative and readable monographs of contemporary interest and importance to pediatricians and general practitioners.

The authors of each of the eight articles in the current number are recognized authorities in their respective fields, and each monograph is a complete, scholarly, up-to-date, and practical piece of work in which the author interprets information from background material and synthesizes it with his own knowledge and experience. Quoting from the preface, the eight topics "encompass a variety of subjects and the whole age span from birth through adolescence." Two of the reviews are related to emotional, psychologic, and social problems: "Emotions and Symptoms in Pediatric Practice," by Milton Senn of Cornell University, New York; and "Puberty and Adolescence: Psychologic Considerations," by Hilde Bruch of the College of Physicians and Surgeons, New York.

The remaining six articles cover recent advances in other fields of interest, e.g., "Effects of Birth Processes and Obstetric Procedures upon the Newborn Infant," by Clement A. Smith of Harvard Medical School; "Therapeutic Agents in the Treatment of Epileptiform Seizures," by William Lennox of Harvard Medical School; "Abnormalities and Variations of Sexual Development during Childhood and Adolescence," by Lawson Wilkins of Johns Hopkins; and the three shorter articles, "Viral Hepatitis," by Joseph Stokes, Jr., of the University of Pennsylvania; "Retrolental Fibroplasia," by T. L. Terry; and "The Osteochondroses," by Beckett Howorth, this latter with beautiful plate illustrations.

It would be difficult to find anywhere a more excellent and rewarding review of the recent important pediatric advances. ELINOR F. DOWNS

Proceedings of an Inservice Training Course in Health Education Techniques—*Territorial Department of Health, Honolulu, Hawaii,* 1948.

Health departments and other health agencies would do well to study this report. These proceedings record the step-by-step development of a six session course on health education tech-

niques. It contains detailed descriptions of each session, covering content, method, references, assignments, and evaluation.

Planned for the personnel of the Territorial Department of Health, it was predicated upon the fact that everyone in the department is concerned with health education and therefore should be familiar with presently accepted techniques. Practically every aspect of public health was represented in the group and covered every level of administration.

Health educators of the Department of Health, the Tuberculosis Association, and the University of Hawaii participated in the planning and were responsible for the conduct of the course. They are to be congratulated for a job well done. S. S. LIFSON

Let's Tell the Truth about Sex—*By Howard Whitman. New York: Pellegrini & Cudahy, Inc.*, 1948. 242 pp. Price, $2.50.

Mr. Whitman is a professional writer who has conferred extensively with outstanding authorities on marriage, parent-child relationships, and on the educational principles involved in transmitting both attitudes and factual information concerning sex to children. He has also read widely concerning these subjects. His book has great value as a professional writer's interpretation in popular language of current thought among leading proponents of what is usually referred to in a confusingly over-simplified manner as "sex education." This outstanding value of the book is lost unless it is read and considered as a whole.

The title is no indication of the value of the book. Apparently written primarily to help parents answer children's questions concerning sex, the book rightly emphasizes the greater importance of attitudes and feelings as compared to factual data. However, suitably phrased answers to the more common questions children may ask at various ages are given with the understanding that parents must adapt them to their own personalities and feelings. Certain statements in the book have to be recognized as essentially true, although not specifically true in many individual instances, such as, "A doctor, by examinations and tests, can easily determine whether a person has a venereal disease."

The tendency of a professional writer to use a vigorous and dramatic phraseology has on the whole been curbed in this book, but not completely. If such titles as "Save Sex—and Maybe Civilization, Too" convey an impression of flamboyancy leading to a conclusion that the contents are probably too superficial, a careful reading of the book as a whole will reveal it to be a generally sound interpretation of current authoritative thinking on the subject matter with which it deals. Although written chiefly for parents, professional persons not already familiar with modern concepts of education in this field may, through careful reading of the book, gain a valuable appreciation and an up-to-date understanding of the subject.

ADOLPH WEINZIRL

Nursing for the Poliomyelitis Patient—*Prepared and published by the Joint Orthopedic Nursing Advisory Service, N.O.P.H.N., 1790 Broadway, New York City.* 88 pp. Copies are free on request to physicians, nurses, physical therapists and other allied professional groups.

This handbook is a revised compilation of material from three sources, all of which are publications of the National Foundation for Infantile Paralysis: No. 22, Nursing Care of Patients with Infantile Paralysis, by Jessie L. Stevenson, 1940; No. 45, Guide for Nurses, Joint Orthopedic Nursing Ad-

visory Service, 1944; No. 49, Nursing Care of the Patient in a Respirator, by Carmelita Calderwood, 1944. The need for drawing together these three references has been felt for some time. The writer understands that some workers have decried the omission of the diagrams (from No. 44) showing how wool packs may be cut most economically from blanket material. The Joint Orthopedic Nursing Advisory Service will make up for this deficiency by forwarding on request mimeographed copies of the deleted diagrams.

As its title indicates, this handbook is devoted to discussions of specific nursing problems in the various stages of the disease. The importance of total care is emphasized throughout. The first nine pages include necessary background data on such topics as the Nature of the Disease, Method of Spread, Signs and Symptoms, Incubation Period, etc. Five drawings of bed positions, application of lay-on and pin-on packs, and crutch walking gaits, as well as a few photographs on care of the bulbar and respirator patient, add to the value of the handbook as a teaching aid.

The reviewer has heard much praise of this publication from instructors in orthopedic nursing, and from nurses who have responded to calls from epidemic areas. Some of the latter have read it en route by plane to the epidemic area. Others have said: "I was rarely without it while on duty. Where may I get copies for my friends who are always trying to borrow mine?"

MARY MACDONALD

Practice of Allergy—*By Warren T. Vaughan (2nd ed.). Revised by J. Harvey Black. St. Louis: Mosby,* 1948. xx + 1132 pp. Price, $15.00.

Allergy as a branch of medicine is an outgrowth of certain laboratory observations grouped together under the general rubric of experimental anaphylaxis. Clinical forms of allergy, however, occur much earlier in medical literature. Leonardo Botallo, in 1565, and Johann Binninger, in 1673, described conditions which we would now call allergic. Better known is John Bostock's description in 1819 of his own case of hay fever. It was not until the turn of the century, however, that a basis was laid which made possible the development of clinical allergy. The progress made in this field of medicine since then is reflected in this massive volume of 1132 pages.

Written for physicians and other serious students of allergy, this treatise can be of considerable value to public health workers. Health officers, industrial hygienists, and others who may be consulted in their communities on matters of allergy can turn to the volume under review for dependable, accurate information. This book is recommended as a reference for public health workers.

GEORGE ROSEN

Malaria Control on Impounded Waters—*By E. L. Bishop and M. D. Hollis, Editors. U. S. Public Health Service and Tennessee Valley Authority,* 1947. *Washington, D. C.: Supt. of Documents, U. S. Govt. Ptg. Office,* 1948. 422 pp. Price, $2.00.

Based largely on the extensive experience of the U. S. Public Health Service and the Tennessee Valley Authority with the control of malaria in connection with impounded waters in the southeastern United States, and with a single *Anopheles* vector, this book is a valuable contribution to our knowledge of a particular phase of malaria control. Its value, however, is not limited to this restricted phase of the subject, for much of the material is of general interest to all mosquito control specialists and malariologists.

The most valuable chapters, which are unique among present published material, are those dealing directly with reservoir problems. These are Chapters III,

"Reservoir Preparation," IV, "Permanent Marginal Measures," V, "Water Level Management," VI, "Shore Line Maintenance," and XVI, "Small Reservoirs." Another very valuable chapter is XIII, "The Relation of Plants to Mosquito Control."

There is a series of appendices, among which "C," containing specifications for chemicals used in mosquito control, and "D," containing lists and descriptions of equipment, tools, and supplies, are particularly useful.

Certain chapters, such as XI, "Malaria Mosquitoes," and XII, "Malariology," could have been eliminated on the ground that these subjects have been more adequately treated elsewhere.

The book is unusually well illustrated. There are many photographs, a number in color, and the numerous tables and diagrams are excellent.

HAROLD F. GRAY

The Psychological Origin and Treatment of Enuresis—*A Practical Discussion of Bed Wetting—By Stevenson Smith. Seattle, Wash.: University of Washington Press,* 1948. 70 pp. Price, $1.75.

This is a small, simply written, 68 page book, the first 46 pages of which are written especially for parents and the remaining pages contain a further and more technical discussion of the problem with references to studies previously made and with discussion of different opinions as to etiology and the relationship of enuresis to physical pathology, familial tendency, depth of sleep, disturbing emotions, personality, social adjustment and sexuality. There is a two page bibliography.

Dr. Smith points out that before any attempt is made to correct enuresis the parent-child relationship must be improved by conscious effort on the part of the parent to be a more attractive person to live with. When this has been accomplished the child is ready to plan and coöperate in an effort to prevent enuresis. He describes several methods that may be tried and explains that any method of obtaining bladder control that is not carried out properly may become an added stimulus to bed wetting. It is pointed out that permitting a young child to urinate while he is half asleep rather than wake him thoroughly is training for bed wetting.

Since this book is short, simple, and presents easily understood and logical concepts, it is recommended for the use of parents and public health personnel.

MARION HOTOPP

Zinsser's Textbook of Bacteriology—*By David T. Smith, Donald S. Martin, Norman F. Conant, Joseph W. Beard, Grant Taylor, Henry I. Kohn, and Mary A. Poston, all of Duke University School of Medicine (9th ed.). New York: Appleton-Century-Crofts,* 1948. 992 pp. Price, $10.00.

From the first edition in 1910 by Hiss and Zinsser through the eighth by Zinsser and Bayne-Jones, this classic *Textbook of Bacteriology* has been a favorite with students of bacteriology, public health, and clinical medicine. The authors of this ninth edition have endeavored "to keep inviolate the basic biological approach to bacteriology and, at the same time, to emphasize the public health significance and the practical importance of certain of the biological characteristics of the organisms."

In comparison with the eighth edition, the general arrangement remains the same. However, each chapter has been revised fully in line with recent investigations, and references are notably to recent literature. The discussion of the sulfonamides has been expanded and a section on antibiotics added. There is a new chapter on pleuro pneumonia-like organisms, and the sections on bacterial metabolism, immunology, fungus and viral diseases have been rewritten entirely. The many new illustrations in-

clude beautiful electron micrographs.

Bacteriologists particularly interested in the genus *Salmonella* will be glad to find the Kauffman-White Schema (1946) for antigenic structure. The student of medical mycology will be encouraged to hear that "the difficulties are largely psychological," and he will find an expanded and satisfying section on the subject. In fact, teachers, students, and workers who have awaited this revision with some impatience will not be disappointed. P. L. KENDRICK

Practical Manual of Diseases of the Chest — *By Maurice Davidson (3rd ed.). New York: Oxford University Press,* 1948. 670 pp. Price, $16.50.

The author, writing out of his clinical experience, has as his objective the production of a book which will help medical students and practising physicians in applying practically our clinical knowledge of chest diseases, omitting the circulatory system. He does not claim to be a pathologist.

About a fourth of the book is occupied with preliminary considerations and with diseases above the terminal bronchi, another fourth with pulmonary tuberculosis, and the other half with various non-tuberculous conditions in the lungs and pleura.

Readers in the United States will find this book interesting though differing somewhat from similar ones written in this country. For example, this author gives relatively more attention to bronchitis and bronchiectasis; drugs are prescribed more freely, some 50 sample prescriptions being listed at the end of the volume; the socio-economic factors in relation to tuberculosis mortality are stressed far less; a less radical approach to the surgical treatment of chronic empyema is advocated; less space is given to the discussion of penicillin in pneumonia than to quinine, alcohol, or morphine; streptomycin in the treatment of tuberculosis is not mentioned, although the use of calcium, insulin, tuberculin, gold and iodine is discussed at some length.

There is a good chapter on sarcoidosis. Histoplasmosis and coccidioidomycosis are not mentioned. A modern view is taken of the problem of bronchogenic carcinoma. The x-ray reproductions are excellent.

In the bibliography given at the end of each chapter there are very few references dated later than the last previous edition in 1941. Most of the references are to British sources.

In general this is a readable volume, well documented, written by a man of rich clinical experience. He is not dogmatic but tries to present a balanced judgment regarding alternative theories and therapeutic procedures.

JOHN H. KORNS

A Health Program for Colleges— *A Report of the Third National Conference on Health in Colleges, May 7–10, 1947, New York, N. Y. New York: National Tuberculosis Association,* 1948. 152 pp. Price, $2.00.

The National Tuberculosis Association is to be congratulated for the support which it has given to this Third National Conference on Health in Colleges and this report. This volume contains a statement of the objectives of the Conference, orienting addresses by Kendall Emerson, M.D., and Alexander G. Ruthven, Ph.D., President of the University of Michigan, followed by chapters on college administration and the health program, the health service, health education, physical education and sports, healthful living, and finally, special health problems.

Without doubt, this is the definitive reference with regard to the subject and is to be commended for its breadth of vision and its recognition of the fact that we must not be content with present achievements in this field.

REGINALD M. ATWATER

Clinical Laboratory Methods and Diagnosis—*By R. B. H. Gradwohl. (4th ed.) St. Louis: Mosby,* 1948. 3 vols. 3,275 pp., 1,111 illus., 58 color plates. Price, $40.00.

The 4th edition of this comprehensive manual closely follows the pattern of previous editions but has again been enlarged and expanded. The work grew from a single volume to two volumes with the 3rd edition in 1943 and has now become a three volume text. As the author states in the preface, it has also outgrown the capacity of a single author and many experts in special fields are listed as collaborators.

The scope of these volumes can perhaps best be indicated by naming the division headings. The first two volumes deal with urine analysis, blood chemistry, hematology, blood groups and transfusion, gastric analysis, puncture fluids, feces, bacteriology, serology, postmortem examinations, tissue cutting and staining, preparation of museum specimens, toxicology, crime detection, basil metabolism, and electrocardiography. These two volumes carry a single index and can be considered as one work. The third volume is actually a separate text on parasitology and tropical medicine written jointly by Dr. Gradwohl and Dr. Pedro Kourí of Havana, Cuba. It contains sections on protozoölogy, helminthology, and diseases caused by spirochetes, viruses, and arthropods.

Each of the chapters contains detailed descriptions of laboratory technics closely interwoven with a discussion of the significance of the findings, with frequent correlations with clinical evidence and case histories drawn from many sources. Several of the sections are actually textbooks in themselves, for instance, the section on hematology occupies 399 pages and is followed by a chapter of 166 pages on blood groups, including Rh and transfusion.

It is impossible in a review to convey adequately an idea of the wealth of detail that appears throughout the work, but as an example the section dealing with Salmonella presents: the clinical manifestations of salmonellosis, the nomenclature, morphology, and biochemistry of the group, the antigenic structure, including H-O, Form, V-W, S-R and phase variations, typing procedures and a complete tabulation of the antigenic structure of some 150 species. One finds a similar complete detailed coverage of practically all the subjects.

The volumes are profusely illustrated with photographs, photomicrographs, color plates, sketches, diagrams, and charts. Source references are given throughout the text as footnotes.

While the book deals primarily with clinical and diagnostic medicine, it also includes a short section on sanitary bacteriology, including restaurant sanitation, the microbiology of frozen foods, and the bacteriological examination of water and milk. Unfortunately this section does not seem to have been brought up-to-date in the same manner as other sections. Methods for the bacteriological examination of water and milk do not conform to present A.P.H.A. practice. Neither brilliant green bile lactose broth nor T.G.E.M. agar is mentioned, and all incubation temperatures are specified as 37°. The reference for the methylene blue reduction test is the 6th edition (1934) of A.P.H.A. Standard Methods which is at considerable variance with the current edition.

As public health laboratories are called upon to increase their scope of service in respect to clinical and diagnostic procedures relating to all diseases, they will need authoritative reference works covering the entire range of clinical practice. The present volumes are eminently suited to meet such needs.

E. K. KLINE

Survey of Food and Nutrition Research in the United States, 1947—*By The Committee on Survey of Food*

and Nutrition Research of the Food and Nutrition Board, C. G. King, Chairman. Washington: National Research Council, 1948. 306 pp. Price, $1.00.

As the title implies, this book is a compilation of nutrition research projects under way in 1947 in academic, governmental, and industrial laboratories. The work gives the titles of 4,086 projects, classified under physiology, chemistry, technology, economics, bacteriology, and psychology, with numerous sub-classifications. The listing of individual projects also gives the institution and any supporting organization in each case. A list of 4,523 investigators with their institutional connections is also given. A complete subject index is included.

The book should prove to be a valuable reference work in the field covered.

PAUL L. DAY

A Program for the Nursing Profession—*By the Committee on the Function of Nursing. New York: Macmillan,* 1948. 106 pp. Price, $2.00.

A Program for the Nursing Profession prepared by the Committee on the Function of Nursing is a momentous document in more ways than one. It springs from a committee of 12 members, nine of them representing eastern universities, which undertook an appraisal of the nursing situation at the invitation of the Division of Nursing Education of Teachers College, Columbia University. Five doctors and three nurses served on the committee. It is a brief report, undocumented but supplied with some general references to source material.

The report presents in terse form the current nursing situation in its social and economic aspects now familiar to professional groups, but goes far beyond the present. It sets a goal for 1960 of a ratio of two practical nurses, trained by a year of preparation in an approved school of practical nursing, to one professional nurse, prepared in a 4 year program in a college or university with school of nursing affiliation. It assumes the gradual complete disappearance of the present 3 year course from which four-fifths of professional nurses are now drawn. Under this plan a total of 600,000 nurses would be anticipated in 11 years.

Coming as it does from a thoughtful group of experts and as a partial corollary of the Brown report (*Nursing for the Future*), these recommendations deserve very careful study and discussion and quick action if they are to be implemented in time to realize the goal. The most serious lack in the report seems to this reviewer, scant attention to the possibility of (a) failure to recruit the 56,000 practical nurses needed each year to supply the quota in 1960, and (b) the difficulty of covering the necessary training in 12 months in what will be converted professional schools. At present the 58 approved schools of practical nursing offering 9–18 months courses graduate about 1,100 nurses yearly and are not filled to capacity, while the subject matter covered is on a more elementary level in most instances than that suggested for the new practical nurses.

If ever a report presented—that well worn word—"a challenge," this is it.

DOROTHY DEMING

A.P.H.A. membership application blank on page XXXV

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

BLOOD TRANSFUSION. Elmer L. DeGowin, Robert C. Hardin, and John B. Alsever. Philadelphia: Saunders, 1949. 587 pp. Price, $9.00.

CANCER OF THE ESOPHAGUS AND GASTRIC CARDIA. Edited by George T. Pack. St. Louis: Mosby, 1949. 185 pp. Price, $5.00.

CANCER PROBLEM, THE. Shields Warren. New York, N. Y.: American Cancer Society, Inc., 1948. 27 pp.

COMMON SKIN DISEASES. A. C. Roxburgh (8th ed.). Philadelphia: Blakiston, 1949. 497 pp. Price, $7.00.

DO'S AND DON'TS FOR HEALTH HAPPINESS AND ABUNDANT LIFE. John T. Sutter. Bluffton, Ohio: Bluffton News Printing and Publishing Co., 151 pp.

ESSENTIALS OF ZOOLOGY. U. A. Hauber. New York: Appleton-Century-Crofts, 1949. 374 pp. Price, $4.00.

FACTS ABOUT NURSING, 1948. New York: American Nurses Association. 102 pp. Price, $.35.

FUNDAMENTAL EDUCATION. Bulletin 1948 No. 13. Washington: Superintendent of Documents, U. S. Gov. Ptg. Office, 1948. 28 pp. Price, $.10.

HOSPITAL IN CONTEMPORARY LIFE, THE. Nathaniel W. Faxon. Cambridge, Mass.: Harvard University Press, 1949. 275 pp. Price, $5.00.

HUMAN RELATIONSHIPS IN PUBLIC HEALTH. Report of an Institute on Mental Health in Public Health. Geddes Smith. New York: The Commonwealth Fund, 1949. 18 pp.

INDUSTRIAL HEALTH DEPARTMENT FUNCTIONS AND RELATIONSHIPS. Medical Series: Bulletin No. VIII. C. O. Sappington. Pittsburgh: Industrial Hygiene Foundation, 1948. 98 pp. Price, $2.00.

LUNG DUST LESIONS VERSUS TUBERCULOSIS. Lewis Gregory Cole. White Plains, N. Y.: American Medical Films. 459 pp. Price, $10.00.

MAN'S PLACE IN GOD'S WORLD. A Psychiatrist's Evaluation. Sol W. Ginsburg. New York: Hebrew Union College—Jewish Institute of Religion, 1949. 30 pp. Price, $.50.

MANUAL OF CLINICAL LABORATORY METHODS. Opal E. Hepler. Springfield, Ill.: Thomas, 1949. 359 pp. Price, $8.50.

MAYO CLINIC DIET MANUAL. Committee on Dietetics of the Mayo Clinic. Philadelphia: Saunders, 1949. 329 pp. Price, $4.00.

MEASUREMENTS OF THE PUBLIC HEALTH. F. A. E. Crew. Edinburgh, Scotland: Oliver & Boyd, Ltd., 1948. 237 pp. Price, 18/–net.

OXIDATION-REDUCTION POTENTIALS IN BACTERIOLOGY AND BIOCHEMISTRY. L. F. Hewitt (5th ed.). London, England: Staples Press Ltd., 1948. 119 pp. Price, 4s.6d.

PERIODONTAL DISEASES. Hamilton B. G. Robinson and Donald A. Kerr. Nashville, Tenn.: State Dental Association, 1948. 40 pp.

PRIMERS IN THE HEALTH AND PERSONAL DEVELOPMENT PROGRAM OF THE CURRICULUM FOUNDATION SERIES:

HAPPY DAYS WITH OUR FRIENDS. Elizabeth Montgomery, W. W. Bauer and Williams S. Gray. Grade I. 95 pp. Price, $.96.

YOU. Dorothy Baruch, Elizabeth Montgomery, and W. W. Bauer. Grade 5. 273 pp. Price, $1.48.

YOU AND OTHERS. Helen Shacter and W. W. Bauer. Grade 6. 272 pp. Price, $1.56. Chicago, Ill.: Scott, Foresman and Co., 1948.

PSYCHODYNAMICS AND THE ALLERGIC PATIENT. Harold A. Abramson. Minneapolis, Minn.: American College of Allergists, 1948. 81 pp. Price, $2.50.

RECENT ADVANCES IN RESPIRATORY TUBERCULOSIS. Frederick Heaf, and N. Lloyd Rusby (4th ed.). Philadelphia: Blakiston, 1948. 290 pp. Price, $5.50.

RESEARCH STORY OF INFANTILE PARALYSIS. Harry M. Weaver. New York: National Foundation for Infantile Paralysis. 28 pp.

RHEUMATIC FEVER. Nursing Care in Pictures. Sabra S. Sadler. Philadelphia: Lippincott, 1949. 144 pp. Price, $3.50.

SANITATION AND PUBLIC HEALTH IN HONDURAS. U. S. Government and the Republic of Honduras. Teguciagalpa, D. C., Honduras: Institute of Inter-American Affairs, 1948. 110 pp.

SLOUGH INDUSTRIAL HEALTH SERVICE, THE. Annual Report 1948. Slough, England: Slough Social Centre. 2s 6 pence.

SOCIAL MEDICINE: ITS DERIVATIONS AND OBJECTIVES. Edited by Iago Galdston. New York: The Commonwealth Fund, 1949. 293 pp. Price, $2.75.

SUGGESTED STANDARDS FOR HOMES FOR THE AGED. Prepared by Conference Group on Welfare of the Aged (6th ed.). New York:

Welfare Council of New York City, 1948. Price, $.50.

TESTS AND MEASUREMENTS. APPLIED TO NURSING EDUCATION. Hyman Krakower. New York: Putnam, 1949. 176 pp. Price, $3.50.

VETERANS ADMINISTRATION TECHNICAL BULLETINS. Series 10. 1946–1947. Washington: Veterans Administration.

YOUR TEETH—HOW TO SAVE THEM. Herbert Yahraes. New York: Public Affairs Committee, 1949. 30 pp. Price, $.20.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

BUDGET SURVEY OF STATE MENTAL HOSPITALS 1948. Conducted by the Illinois Department of Finance. Springfield, Ill.: Illinois State Department of Finance, 1948. 1948.

CALIFORNIA PUBLIC HEALTH REPORT. July 1, 1947–June 30, 1948. San Francisco, Calif.: State Department of Public Health. 124 pp.

COLORADO CIVIL SERVICE, PROGRESS OF 1946–1948. Denver, Colo.: State Civil Service Commission.

COLUMBIA COUNTY (New York) DEPARTMENT OF HEALTH 15th ANNUAL REPORT 1947. Hudson, New York: Columbia County Department of Health. 36 pp.

COOPERATION FOR RURAL HEALTH. MISCELLANEOUS REPORT 123. Helen L. Johnston, Washington: Farm Credit Administration, U. S. Dept. of Agriculture, 1948. 55 pp.

DIGEST OF CONNECTICUT ADMINISTRATIVE REPORTS 1947–1948. Vol. II. Includes Sections on Natural Resources, Health and Sanitation, Charities, Hospitals, Corrections, Educations. Hartford Conn.: State Department, 1948. 593 pp.

DUKE ENDOWMENT YEAR BOOK NO. 16. Including Annual Reports of the Hospital and Orphan Sections. Charlotte, N. C.: The Duke Endowment. 47 pp.

FOR BETTER HEALTH IN NEBRASKA. ALMANAC 1949. Lincoln, Nebraska: State Department of Health. 48 pp.

HEALTH OF OUR IOWA FAMILIES, THE. Des Moines, Iowa: State Department of Health. 29 pp.

INDIVIDUAL AND VENEREAL DISEASE, THE. An Analysis of the Literature Dealing with Psycho-Social Characteristics of Patients. Margaret K. Lumpkin. New Haven, Conn.: Department of Public Health, Yale University. 71 pp.

OHIO, STATE DEPARTMENT OF HEALTH. 1947 ANNUAL REPORT. Columbus, Ohio: State Department of Health, 1948. 118 pp.

INSTITUTE OF INTERNATIONAL EDUCATION. 29th ANNUAL REPORT OF THE PRESIDENT, October 1, 1948. New York, N. Y.: Institute of International Education. 136 pp.

IOWA HEALTH COUNCIL PLAN. Build Better Health Thru Community Organizations. Des Moines, Iowa: State Department of Health.

PROVINCE OF MANITOBA, CANADA. ANNUAL REPORT 1947. Winnipeg, Manitoba: Department of Health and Public Welfare, 1948. 296 pp.

PUBLIC HEALTH NURSING SERVICE. ANNUAL REPORT 1948. Charlotte, N. C.: City Health Department.

SOCIAL CONTROL OF VENEREAL DISEASE, THE. REPORT OF A NATIONAL INQUIRY OF PROFESSIONAL OPINION. New Haven, Conn.: Department of Public Health, Yale University. 151 pp.

WEST VIRGINIA MERIT SYSTEM COUNCIL. 6th REPORT, July 1, 1947 to June 30, 1948. Charleston, W. Va.: Merit System Council. 41 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

There Are about 148,000,000 of Us —Our population increased 2½ millions last year thanks to a near-record of births and the lowest death rate ever plus a little immigration. Unless something unforeseen happens we should exceed the 150 million mark in the 1950 census.

ANON. Population Increase Large in 1948. Statist. Bull. Metrop. Life Insur. Co. 29, 12:1 (Dec.), 1948.

Required Reading — Pseudo-scientific and plain nostrums cunningly foisted on credulous doctors and desperate try-anything cancer victims are told off one by one. Then come the treatments based upon theories of ques-

tionable promise. In somebody's eyes you may appear as an expert. So be prepared.

ANON. Cancer and the Need for Facts. J.A.M.A. 139, 2:93 (Jan. 8), 1949.

Tracer Atom's Anniversary—Professional curiosity will drive you to this symposium on atomic energy and its relations to medical research and human welfare generally. In it we're promised a lot more information about these subjects through scientific papers and books now in the throes of composition.

AEBERSOLD, P. C. Isotopes for Medicine (and two related papers). J.A.M.A. 138, 17:1222 (Dec. 25), 1948.

Mental Vitamins—This is a plea—and a delightfully presented plea—that clinicians and nurses in children's clinics give attention to relieving emotional difficulties as well as bodily ailments. Modern drugs and modern parent-training give more time to think about minds, says the writer. The urge to quote most of the paper is strong.

ANDERSON, C. W. Some Aspects of the Mental Welfare of Children and Infants. Pub. Health 62, 3:47 (Dec.), 1948.

Note for Your Notebook—Epidemiologic studies suggest three ways by which Q fever may have been spread in a recent outbreak: working in a dairy, living close to a dairy or stockyards, drinking raw milk.

BECK, M. D., *et al.* Q Fever Studies in Southern California. Pub. Health Rep. 64, 2:41 (Jan. 14), 1949.

New-borns Will Respond to Antigens—At the first, fifth, and ninth week of life 200 babies were given a triple antigen of diphtheria and tetanus toxoid and pertussis vaccine. A month later all infants showed a "protective level" titre against tetanus, 84 per cent were found safe against diphtheria, and 60 per cent were considered to be protected against whooping cough. A booster dose later raised the percentage of immunes in the latter categories.

DI SANT' AGNESE, P. A. Combined Immunization Against Diphtheria, Tetanus and Pertussis in Newborn Infants. Pediatrics 3, 1:20 (Jan.), 1949.

Social Security—Public medical care, and health and welfare services already established, plus extensions and supplements reasonably to be expected, plus growing coverage of voluntary prepayment schemes are all added up into a comprehensive picture to preface a measured statement of the A.M.A.'s reasons for opposing compulsory sickness insurance.

FISHBEIN, M. Health and Social Security. J.A.M.A. 138, 17:1254 (Dec. 25), 1948.

Good, Solid Words Are These—If a person eats more than he needs he grows fat; if less, he gets thin. The causes are conjectural, but one can be certain that emotions, training, and habit are influential. Endocrine disorders rarely are responsible. Can you resist reading the rest?

GASTINEAU, C. E., *et al.* Treatment of the Fat and the Lean. J.A.M.A. 139, 2:86 (Jan. 8), 1949.

After Careful Examination—In the wake of the 1947 New York City smallpox epidemic, 5 million were vaccinated in a hurry. Following wholesale immunization, there occurred 45 cases of encephalitis that may have been post-vaccinal. Most made a complete and prompt recovery. The 4 who died showed, post-mortem, no characteristic signs.

GREENBERG, M., AND APPELBAUM, E. Post-vaccinal Encephalitis. Am. J. M. Sc. 216, 5:565 (Dec.), 1948.

Their Goal Remains the Same—As everyone but the office janitor must know by now, revised "dietary allowances" appeared in 1948. This excellent discussion of the changes—which

are essentially of a minor nature—will prove useful for you as a reminder of what the allowances are, and are not, supposed to be.

JEANS, P. C. Recent Revisions in the Recommended Dietary Allowances. J. Am. Dietet. A. 25, 1:13 (Jan.), 1949.

We Could Tell Him a Few Things—England has abandoned compulsory smallpox vaccination—which hasn't been very compulsory for many years. In the course of time the population will be largely unprotected. What will happen? In view of the long experience of one unvaccinated town there is no real cause for alarm, says this M.O.H.

MILLARD, C. K. The End of Compulsory Vaccination. Brit. M. J. 4589:1073 (Dec. 18), 1948.

Young Old People—Inspired words are these! "Life ends for many old people as naturally as it began, with little distress, in the midst of full, forward-looking participation in society, with no period of custodial care or sitting on the side-line benches. The geriatrician believes that this happy ending can be achieved by many more."

MONROE, R. T. Medical Problems of Old Age. New England J. Med. 240, 2:57 (Jan 13), 1949.

"New Profession . . . Health Physicist"—If your digestive capacity is equal to the job, you'll get a lot of nourishment from the capsule doses of scientific findings in a great variety of subjects ranging from genes to cosmic rays and not neglecting nuclear energy's effect on public health.

MOULTON, F. R. The A.A.A.S. and Organized American Science (and) Abstracts of Papers Presented at the A.A.A.S. Centennial Celebration. Science 108, 2813:573 (Nov. 26), 1948.

Productive Field—Prevalence rates of 8 per cent + of unsuspected pulmonary tuberculosis among the inmates and 2.7 per cent among the attendants in 7 state mental hospitals are statistics worth remembering.

ORCHSLI, W. R. Tuberculosis Control Program of Nine California Mental Institutions. Pub. Health Rep. 64, 1:4 (Jan. 7), 1949.

Intellectual Adventure—Can you write genially and intelligibly about your own particular job in words so clear that an educated layman will respond, "Well, I'm glad to get that straight, at last."? For an outstanding example of what you ought to be able to do, hunt out this dedicatory address.

RABI, I. I. The Atomic Nucleus, A New World to Conquer. Science 108, 2816:673 (Dec. 17), 1948.

Dental Health Goals—Mostly this paper is about the dental research projects and dental health field demonstrations now underway by the U. S. Public Health Service. There is a lot more in it which should be known by any health worker.

SCHEELE, L. A. A Forward Look at Dentistry. J. Am. Dent. A. 37, 6:627 (Dec.), 1948.

Widely Variable, They Pronounce It—In case you'd like to know what the mumps virus looks like, there are some excellent electron micrographs accompanying this article. What else you will get from it, I cannot predict, for the discussion was way over my head.

WEIL, M. L., *et al.* Purification pH Stability and Culture of Mumps Virus. J. Immunol. 60, 4:561 (Dec.), 1948.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

POPULATION, like race, is one of the most publicized biological factors implicated in social developments. Historians, for instance, have endeavored to explain the decline of Rome as primarily a demographic phenomenon. Other social scientists have been interested in population because of particular contemporary problems. In the 19th century this was a fear of overpopulation and population pressure. Later, in Western Europe, the decline of fertility led governments to introduce various measures designed to affect the trend of fertility. Specific problems thus led to the development of population policies.

Among the factors affecting population, war takes a prominent place. The effects of World War II will be felt for many years, just as the impact of the war of 1914–1918 is still clearly seen in the demographic structure of Germany.[1]

CIVIL WAR AND DEMOGRAPHY IN SPAIN

The Spanish Civil War has been called a rehearsal for World War II. It may therefore be of interest to consider the effects of the internecine struggle on the Spanish people before glancing at the influence of World War II on other European populations. To ascertain the impact of the Civil War on the population, Verdugo [2] studied the trend of certain demographic phenomena. Among these were birth and death rates, mortality of infants under 1 year, and of children aged 1 to 5, stillbirths, and the occurrence of such diseases as tuberculosis, typhus fever, typhoid fever, and smallpox. The period considered comprised the ten years from 1933 to 1942.

The birth rate declined considerably during the war but rose again in the post-war years. Nevertheless, it did not reach the level that had existed in 1936. General mortality, as well as infant and child mortality, increased from 1937 until 1940 when a decline set in. The stillbirth trend was variable, in general tending to diminish except for the years 1939 and 1942. Typhoid fever and tuberculosis increased markedly during the war years, the former especially in 1938 and 1939. However, following the termination of hostilities typhoid dropped rapidly, while tuberculosis has shown no appreciable tendency to diminish. Smallpox rose in some degree during the immediate post-war years, while typhus fever did not show an appreciable increase until 1941–1942. On the whole, Verdugo concludes, Spain has recovered quickly from the demographic disturbances occasioned by the Civil War.

EXAMINATION OF UNIVERSITY STUDENTS IN WÜRZBURG

The impact of the war and the immediate post-war period on a specific group of the German population is illuminated by an investigation reported by Bunse.[3] In the winter semester of 1946–1947, 1,750 out of the 2,500 students enrolled at the University of Würzburg were subjected to thorough clinical and röentgenological investigation. This represented 70 per cent of the student body. Among the male students, 80.2 per cent were in the 18–25 age group, while 91 per cent of the female students were in the same group. The group examined contained 1,422 male and 328 female students.

It was found that 10.2 per cent of the male students were underweight by 5 kilograms or more while among the fe-

male students only 2.4 per cent were underweight to this extent. Active tuberculosis was found in 0.77 per cent of the men. This may be compared with the figure of 1.35 per cent found among students in Munich and 0.42 per cent among students in Jena. Bunse also compares his finding with the result of examinations of Würzburg students in 1933–1935. At that time 0.3 per cent of the students examined were found to have active tuberculosis. On the basis of this comparison Bunse concludes that there has been almost a threefold increase in cases of active tuberculosis among Würzburg students.

Anemic states were not infrequent. Among male students 11.2 per cent were found to have hemoglobin values under 65, while 30.8 per cent had values under 70. In 17.5 per cent of the male students the number of erythrocytes was less than 3.5 million. Among the women students 34 per cent had hemoglobin values under 65, and 59 per cent under 70, while in 48.4 per cent the number of erythrocytes was under 3.5 million.

Refractive errors were found in 40.9 per cent of all the students. Among the male students 38.3 per cent were hyperopic and 2.4 per cent myopic. Among the women 38.7 per cent were hyperopic and 2.1 per cent myopic.

Cardiac findings, chiefly compensated mitral defects, are reported in 1.4 percent of the students. Most of these had been diagnosed previously.

BIRTHS IN DENMARK FROM 1940 TO 1945

Prior to World War II the Danish birth rate had been declining, but during the German occupation this trend was reversed and gave way to a rapid rise. Hedemann tries to explain this phenomenon.[4] In 1939 the absolute number of live births was 67,900 and in 1941 it was approximately 71,300. In 1944, however, the number had risen to 90,600 and in 1945 to 95,100. During the occupation period about a third of a million babies were born. Of these it is estimated that only about 4,000 to 5,000 were attributable to German soldiers. There thus remains the problem of explaining a rise in the birth rate at a time when one might more reasonably expect it to fall. Hedemann is aware that demographic phenomena are not just biological, but that demographic change results equally from other elements deeply rooted in the social and psychological environment. Thus, he points out that in 1945 there were 20,000 more women between the ages of 15 and 49 than there had been in 1940. At the same time he also calls attention to an apparent change in social attitude toward childbearing, which became more "fashionable" than it was before the war. Such factors as constant employment, high wages, and restrictions on extramural social activities by curfews are also significantly implicated. It is clear that the increased birth rate resulted from the interaction of a number of factors, some measurable and others intangible.

CHINESE POPULATION PROBLEMS

Students of Chinese affairs have long been aware that population is a crucial factor in the health and welfare problems of China. The magnitude of these problems, in their quantitative as well as qualitative aspects, have led some to what is essentially a counsel of despair. Thus, in his recent book, *China. The Land and the People,* Winfield,[5] after discussing the state of public health, ends with the suggestion "that public health measures which can save millions of lives should not be practiced in China on a nationwide scale until the stage is set for a concurrent reduction of the birth rate. Existing misery and poverty can be permanently eliminated only when there are fewer, healthier people, with longer life expectancy and greater economic security. The future welfare of the Chinese people is more dependent

on the prevention of births than on the prevention of deaths." This is indeed Malthusianism with a vengeance! However, there is some evidence that the birth rate among the poor is somewhat lower than among the well-to-do. Abortion though illegal is practised, and it has been found that poor families do use contraception.[6] Furthermore the published literature shows that medical and public health workers in China in dealing with specific problems do not do so in terms of such a monistic either/or philosophy.

There is a marked awareness of the need for more knowledge. H. S. D. Garven[7] calls for more studies of the normal in the Chinese subject. There is as yet little or no knowledge of the limits of variability of many of the simple, easily measurable characteristics both anatomical and physiological in Chinese. Some studies have been made, but the figures available for varying social class, locality, occupation, climate, and diet are as yet quite meager. Such data must be forthcoming as a basis for all health work.

In the same issue of the *Chinese Medical Journal,* the editor proposes a study, along the lines suggested by Garven, of the physical, physiological and mental development of one group of Chinese, the Cantonese.[8]

Information of the type contained in these two proposals is offered by Chen-Chia Lee.[9] A statistical study of 3,550 full term infants born in West China showed an average weight at birth of 3,080 grams, irrespective of sex. The average for boys is 100 grams more than for girls. These birth weights were correlated with the season, and with the age, parity, and nutritional status of the mother. The mother's nutrition seemed to make little difference in the birth weight. On the other hand, it appears that infants born in the winter and spring are heavier than those born during other seasons. Infants born in West China are reported to be smaller than those born in North and Central China, but heavier than Cantonese babies.

Trachoma is one of the common chronic diseases in China and one of China's most important medical and public health problems. Chen-Chung Wu reports on trachoma in Changsha on the basis of hospital statistics.[10] Of 1,340 patients attending the eye clinic of the Hsiang-Ya Hospital at Changsha 1,017 (75.8 per cent) suffered from trachoma. The highest age incidence was between 10 and 40 years of age. Occupational incidence for this group was found to be highest among students and teachers, merchants, coolies, and housewives respectively. It should be noted that the apparent higher incidence among teachers and students is probably due to the fact that they come for examination and treatment as soon as any symptoms are noted. Similarly, merchants come because they can well afford the treatment.

Flowers[11] discusses the causes of blindness in China and links this problem to the greater one of raising the standard of living and education among the Chinese people. He points out that most of the blindness in China has direct and indirect causes. These he lists as follows:

Direct Causes	*Indirect Causes*
1. Smallpox	Lack of vaccination
2. Trachoma	Poverty, dirt, low standard of hygiene
3. Ophthalmia neonatorum	Poor midwifery
4. Phlyctenular conjunctivitis	Poverty, low standard of living
5. Keratomalacia	Dietary deficiency
6. Ulcerative keratitis	Poverty, ignorance, poor hygiene, low standard of living
7. Mucopurulent conjunctivitis	

Flowers concludes that an attack upon the vast problem of blindness in China must therefore include adequate medical treatment plus the greater general task of public education, including health education.

DECLINING MORTALITY IN WESTERN EUROPE AND THE UNITED STATES

Examination of the general mortality rate for various countries shows that a significant decline has occurred since the middle of the last century.[12] Comparison of the figures for the period 1841–1845 with those for 1945 reveals a drop for France from 227 to 156 per 10,000 inhabitants, for Belgium from 235 to 147, for Holland from 239 to 151, for Denmark from 196 to 105, and for England from 214 to 126. Moine emphasizes that between the decade 1846–1855 and the year 1936 the risk of death for persons of all ages has dropped to 69.9 per cent of its initial value for males and to 60.4 per cent for females. This decline is due particularly to the mortality changes in the younger age groups, and is attributed by Moine to advances in preventive and therapeutic medicine as well as in social welfare.

When mortality is examined by cause, it is found that in France from 1907 to 1936 the number of deaths due to tuberculosis, other communicable diseases, and diseases of the digestive and respiratory systems has declined, while the deaths ascribed to diseases of the cardiovascular, nervous and urogenital systems, cancer, and senility have risen. As an example Moine takes tuberculosis, comparing the periods 1889–1893 and 1934–1938. This comparison shows that for males the deaths from tuberculosis fell to 89 per cent of the initial value (174 to 155) and for females to 83 per cent (130 to 108).

In another study Moine pursues his analysis of mortality by comparing mortality in France and in the United States.[13] He points out that there has been a marked decrease since 1900. In the United States this decline is notable particularly in the case of such causes as the enteric diseases and diphtheria. On the other hand, increase in cancer, cardiovascular diseases, diabetes, and accidents presents a serious problem. A striking difference between France and the United States is the number of deaths attributed to senility, 8.9 per 10,000 in the United States and 193 per 10,000 in France. It is not unlikely, however, that this difference is due in part to better diagnosis and reporting in the United States. France also has a larger number of deaths attributed to tuberculosis and diseases of the respiratory system (+ 111 per cent and + 61 per cent per 100,000 population respectively). On the other hand, France has fewer deaths ascribed to cardiovascular disease and to diseases of the urogenital tract.

STILLBIRTHS AND MORTALITY OF PREMATURES IN RUMANIA

As part of an investigation of the sanitary environments of middle and lower class urban women, Slobozianu studied 24,000 births recorded from 1916 to 1942 in the First Obstetrical Clinic, Filantropia Hospital of Bucharest.[14] In rural areas the stillbirth rate has been 2.2 per cent, while in urban districts it has been 5.3–5.5 per cent and in some cities even 8.9 and 10.67 per cent. In the Obstetrical Clinic the stillbirth rate from 1921 to 1924 was 4.7 per cent, while from 1937 to 1942 it was 8.2 per cent, which is in agreement with the general increase observed throughout Rumania.

Premature mortality was 3.7 per cent in rural areas and 3–3.1 per cent in towns. In the clinic it was found to be 2.45 per 100 live births. Syphilis was found in 16.1 per cent of premature births that occurred in the Obstetrical Clinic between 1921 and 1924, and in 18.21 per cent of those during the period

1937–1942. To alleviate the situation, Slobozianu recommends the improvement of obstetrical practice, increased prenatal care including social assistance to needy mothers, and special attention to the treatment of syphilis in pregnant women.

Rumania is at present considerably concerned with improving the "biological capital" of the country, that is, its population.[15] One of the problems involved is that of abortion. In view of the large number of abortions that are performed and the serious consequences that these have, it is suggested that the legislation of abortion be revised. Crainicianu and his collaborators suggest that in addition to therapeutic and eugenic indications for abortion, place be reserved for a social indication. The author proposes the establishment of a commission attached to certain hospitals which would establish in each case the need for intervention. This would be a transitory measure to be abandoned as soon as the economic and social conditions in Rumania will permit the institution of effective measures of social assistance to mothers and infants.

The similarity of this proposal to actual practice in the Soviet Union in the years immediately following the revolution is readily apparent. It will be worth observing Rumanian developments to see to what extent these will parallel the Russian experience.

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ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

ROSTER OF SANITARY AND PUBLIC HEALTH ENGINEERS

The following is of importance to all sanitary and public health engineers:

Efficient utilization of our national resources, both human and otherwise, is difficult during periods of national emergency. Criticism has been directed against the federal government and its agencies for the inefficient use of sanitary and public health engineers during World War II.

The National Security Resources Board is charged with the responsibility of planning for the efficient use of our national resources in any emergency. James A. Crabtree, Medical Director, U. S. Public Health Service, has been assigned to the NSRB to develop methods for the best utilization of medical and public health personnel and facilities. One of the first goals of Dr. Crabtree's Medical Division is the preparation of comprehensive rosters of professional personnel. Should another national emergency arise, these rosters will be used in developing programs that will assure the best use of all professional people.

Arrangements have been made with the American Public Health Association, through the Engineering Section Project, for the preparation of a roster of all sanitary and public health engineers in the United States, other than those in federal service. The magnitude of this task can be appreciated when it is realized that there is no comprehensive list available similar to the membership list of the American Medical Association, the American Nursing Association, or the American Dental Association. Neither are there state professional registers such as exist for physicians, nurses, and dentists.

Lists of engineers are now being prepared from membership lists of the various professional and technical societies. The Conference of State Sanitary Engineers has volunteered its active support and assistance. Other organizations and even individuals are being asked to help. Questionnaires will be sent out to individuals in the near future. Prompt return of the forms is requested. It will be to the advantage of each engineer to assure his proper classification so that proper use of his training and experience can be obtained. Any engineer not receiving a questionnaire by July 1 should communicate directly with the

Engineering Section Project
American Public Health Association
1790 Broadway
New York 19, N. Y.

so that his name can be entered on the roster and he be furnished with a copy of the questionnaire.

Undoubtedly there are individuals professionally qualified in sanitary or public health engineering who are not now actively engaged in that field. Since they may not belong to any of the more important professional or technical engineering societies they may not see this notice. You are urged to advise the Engineering Section Project of the names and addresses of such people.

GLOSSARY—WATER AND SEWAGE CONTROL ENGINEERING

After 12 years of preparation, the *Glossary—Water and Sewage Control Engineering* will be ready for distribution by early April. This volume has been prepared by a joint committee composed of representatives of the A.P.H.A., American Society of Civil Engineers, American Water Works Association, and the Federation of Sewage Works Associations. Originally, two Association committees participated in the preparation of the *Glossary*. The first, preparing water works terms, consisted of

Earle B. Phelps, *Chairman*
Sol Pincus, C.E.
Ralph E. Tarbett, C.E.

The second, assigned the preparation of sewage works terminology, consisted of

Gordon M. Fair
H. A. Whittaker

A final review committee, composed of a representative from each sponsor organization, brought the two lists of terms together and prepared the final report. Sol Pincus represented the A.P.H.A. on this committee.

Everyone who uses water or sewage control engineering terms will find the *Glossary* invaluable in preparing reports, articles for publication, or in speaking to professional groups. Widespread use of the accepted definitions should eliminate differences in the use of technical terminology.

The volume, almost 300 pages in length, is available to A.P.H.A. members through the Association Book Service at $1.00 per copy. A cloth-bound edition will be available at $2.00 a copy. Order your copy now to be sure you get it without delay. Non-members may order directly from the American Society of Civil Engineers, 29 W. 39th St., New York City, $2.00 for paper-bound, $3.00 for the cloth-bound volume.

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FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1949, the total membership of the Association was 11,102, including 2,093 Fellows, or almost 19 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine, with at least one year of graduate study in public health in a university, Master of Public Health, Diploma in Public Health, or other equivalent degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Applications are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that members themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although over 3,000 persons have been

duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health,* usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Committee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 13 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are $12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at $200, covering all future annual dues.

Applications for Fellowship to be considered at the 77th Annual Meeting in New York, N. Y., the week of October 24, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

A MESSAGE FROM THE CIRCULATION DEPARTMENT

Certain 1948 issues of the *American Journal of Public Health* are needed to complete sets for members and subscribers. The *Journals* that are in short supply are January, March, August, September, and October. It will be appreciated if members or subscribers who can spare any of these issues will mail them collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Sanitary Engineer — Well organized county health department. County is part of state student training area, generalized program. Total staff of 12 includes assistant sanitarian and sanitation clerk. County population 44,000, located on Lake Michigan, 140 miles from Chicago. Four weeks annual vacation. Salary range $3,600–4,500 plus travel, dependent on experience. Write: Arthur G. Baker, M.D. Director, Allegan County Health Dept., Allegan, Mich.

Education Supervisor—In a combined agency financed by official and nonofficial funds. Generalized program - graduate affiliation with two university programs; staff consists of 13 public health nurses, 1 clinic nurse, 1 general supervisor, 1 educational supervisor, 2 secretaries, and 1 clerk. One hour from New York City; salary open. Write **Box A-46**, Employment Service, A.P.H.A.

Supervising Public Health Nurse for modern generalized nursing program. Minimum requirements, public health certificate or one year of graduate study in public health nursing. Salary range $3,336–3,816; 40 hour week; retirement plan; sick leave. Write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Public Health Nurses: Must have certificate and one year experience. Government field work, Southwestern Oklahoma, good location, over $300 per month, 40 hour week, one month paid vacation, paid sick leave, automatic promotion every eighteen months, retirement system, disability compensation, automobile and travel expense furnished free. Write: P. O. Box 139, Lawton, Okla.

Public Health Staff Nurse, School Health Department. Base Salary $2,600–2,900 depending upon qualifications; 5 day week, 1 month's vacation, retirement plan. Community 124,000 population, adjacent to Washington, D. C. Write: Claire A. Christman, M.D., School Health Dept. 1800 N. Edison St., Arlington, Va.

1. **Virologist:** Experience in performing diagnostic complement-fixation, agglutination, and neutralization tests, animal inoculations and research in virology. Teaching of medical students and technicians essential. Salary ranges $6,000 upward.

2. **Sanitary Chemist:** Responsible for and in charge of the chemical and bacteriological examination of milk and water and perform special tests on polluted waters and sewage. Graduate of recognized college with specialization in chemistry and experience in sanitary chemistry in a laboratory or comparable position. Salary $3,750 with $500 bonus which may or may not be permanent. Write: Director of Laboratory, Erie County Laboratory, 2100 City Hall, Buffalo 2, N. Y.

Public Health Nurses for staff positions in county health departments. Open salaries; five day week; extended paid vacations and sick leave; field teaching center for graduate public health nurse students within area. Write: Northern Peninsula Office, Michigan Dept. of Health, Escanaba, Mich.

Public Health Nurses for overseas service. Require supervisory or organizational experience to develop maternal, infant, child care projects and organize small hospitals and dispensaries, as well as develop overall public health program. Speaking knowledge Yiddish or French essential. Beginning salary $4,000 with yearly increments in addition to living cost allowance. Write: Robert Pilpel, Secretary, Medical and Health Committee, American Joint Distribution Committee, 270 Madison Avenue, New York 16, N. Y.

Assistant Health Officer—Opportunity for young physician in large county; northeast; generalized program with emphasis on tuberculosis control. Previous experience and training desirable but not essential. Salary $7,000 to $7,500 plus car allowance and official expenses. Write: **Box A-47**, Employment Service, A.P.H.A.

1. **School Health Physician** with training or experience in public or school health to carry on school health program, examinations, immunizations, etc. Some preschool or well child work included. Salary $5,040 to $6,000 plus mileage.

2. **Director of Tuberculosis Control**, to direct departmental program including

consultation with nurses, patient interviews, and reading of 35 mm., 70 mm., and 14 x 17 chest x-rays. Salary $5,040 to $6,780 plus mileage.

3. **Director of Guidance Clinic**—half-time psychiatrist to direct clinic serving children and adults. Training in child psychiatry preferred. Clinic housed in health department but under auspices of City-County Mental Hygiene Society. Salary commensurate with qualifications.

4. **Public Health Nurses**—senior and junior grade, preferably with public health training for field work in large city-county health department. Excellent supervision. Should have own cars. Salary range, Junior grade, $170–180 per month, senior grade, $200–$245 per month, plus mileage. For any of the above positions write to: Dr. Paul M. Golley, Director, Chattanooga-Hamilton Co. Health Dept., Chattanooga, Tenn.

Assistant Director, M.D. (Maternal and Child Health) with the Los Angeles County Health Department. Beginning salary $6,192. California license will not be required until appointment is offered. An M.D. from an approved medical school and at least two years' recent experience in the practice of medicine in a public health department is required. Six months of the experience must have been in maternal and child health. Write: before March 31 to Los Angeles County Civil Service Commission, Room 102, Hall of Records, Los Angeles 12, Calif.

Non-medical Administrators for positions concerned with training and general personnel administration including position classifications and salary administration for national voluntary agency. Travel at least one-third of time required. Write Box A-48, Employment Service, A.P.H.A.

Sanitarian—newly created position, expanding Health Department in Southwestern Michigan. Salary $250 per month plus mileage. Opportunity for study at University of Michigan. Minimum requirements two years' college plus training or experience. Work chiefly food and milk. Write: Director, Lenawee County Health Department, Adrian, Mich.

Two Staff Nurses for generalized Public Health Nursing Program adjacent Washington, D. C. Three weeks paid vacation, sick leave, 40 hour week, merit salary increases, opportunity to attend universities part-time in Washington. Must own car. Write: Personnel Director, Arlington Court House, Arlington, Va.

Public Health Dentist, beginning gross salary $5,700 per year. Duties include conducting demonstration dental clinics with emphasis at present on fluorine programs, evaluating plans for dental health programs, acts as technical consultant to Director, maintains necessary contacts with lay and professional groups, eligibility for licensure, one year training public health dentistry required. Write: Henry A. Kjentvet Personnel Officer, State Board of Health, State Office Bldg., Madison 2, Wis.

Health Officers—Vacancies in County and District Departments, salary $6,600 to $8,500 based upon training and experience. Must be licensed or eligible for licensure in North Carolina. Opportunity for advancement based on merit. Write: Dr. J. W. R. Norton, State Health Officer, Raleigh, N. C.

Bacteriologist—man, location Mid-West Consulting Laboratory. College graduate with major training in bacteriology. Minimum of five years' experience in analysis and research of disinfectants and foods. Conduct and supervise research on disinfectants, foods, water and sewage. Some field work. Write: Box A-49, Employment Service, A.P.H.A.

Staff School Nurse for small, well organized school health department Pacific Coast. Beginning salary about $2,850; 35 hour week; work nine calendar months; two weeks vacation Christmas, one week Easter. Annual increment for 10 years, tenure after three years. B.A. and P.H.N. degrees, own car. Send photograph, age, degrees, training and experience, marital status, number of children. Write Box A-50, Employment Service, A.P.H.A.

Health Officer for DeWitt-Piatt Bi-County Health Unit. Central Illinois counties half-way between Chicago and St. Louis. Population 35,000, largely rural. Salary range $8,400 and up. Write: Hal E. Gronlund, D.D.S., President, Board of Health, 202½ East Side Square, Clinton, Ill.

POSITIONS WANTED

Health Educator, M.S. in public health (Columbia), single, 23. Eight months field experience in community organization for health; 1 year research experience in nutrition. Position in official or voluntary health agency with a program in community health education desired. North Eastern U. S. preferred. Write Box HE-9, Employment Service, A.P.H.A.

Laboratory Technician—Graduate class 1949 (Feb.), B.S. Biology; 6 years' ex-

perience in medical and sanitary laboratory work; age 32; married; desires position in public health work. Write: Box L-6, Employment Service, A.P.H.A.

Public Health Physician, 39, M.D., M.P.H. from leading universities, considerable experience in local health administration and teaching in outstanding medical school and important public health responsibilities in the Army. Will consider desirable opening at salary consistent with background. Write: Box Ph-11, Employment Service, A.P.H.A.

Health Educator, female, 45, single, M.P.H. Considerable and responsible experience in local and national agencies and as executive secretary of health councils. Some teaching and editorial experience. Seeks challenging opportunity in a responsible position in official or voluntary health agency. Write Box HE-10, Employment Service, A.P.H.A.

Announcements

The U. S. Civil Service Commission announces an examination for Public Health Nurse, for positions in the U. S. Public Health Service and the Indian Service, throughout the country and in the Territories and possessions. Salaries range from $3,727 to $4,479 a year.

Applicants will be rated on the basis of education and experience. Requirements: a 3 year nursing course *or* a 2 year nursing course, plus appropriate nursing experience or education. Included in or supplementary to this education, applicants must show a minimum of 30 semester hours in an approved program of study in public health nursing and a minimum of one year's experience in public health nursing in a generalized community public health program. For positions paying $4,479, additional experience in staff nursing or supervisory experience is required. Current registration as professional nurses in a State, Territory, or the District of Columbia, at the time of appointment is required.

Maximum age limit for positions paying $3,727 in the Indian Service is 40 years; for all other positions to be filled, 62 years. Age limits are waived for persons entitled to veteran preference. Write: U. S. Civil Service Commission, Washington, D. C., or Civil Service regional offices. Closing date for applications is March 29, 1949.

Competitive examinations for appointment of Engineer Officers in the Regular Corps of the U. S. Public Health Service will be held on April 11, 12, and 13, 1949. Appointments will be made in the following grades:

1. Junior Assistant Sanitary Engineer (Second Lieutenant), entrance pay with dependents, $3,391.
2. Assistant Sanitary Engineer (First Lieutenant), $3,811.
3. Senior Assistant Sanitary Engineer (Captain), $4,489.

All grades are required to be U. S. citizens with a degree in one of the several branches of engineering from a school of recognized standing. (Undergraduate engineering students in the senior year are eligible to take the examination.) Additional requirements:

ASSISTANT GRADE:

Seven years of educational and professional training or experience subsequent to high school (including two years professional training or experience in a field of public health or related field).

SENIOR ASSISTANT GRADE:

Ten years of educational and professional training or experience after high school (including four years of professional training and experience in public health or related field).

Duty assignments include: sanitary engineering, water pollution control, industrial hygiene, malaria and typhus control, milk and food sanitation, and environmental health research activities.

Apply before March 18 to Surgeon General, U. S. Public Health Service, Washington 25, D. C., Division of Commissioned Officers.

New Continuous Examination Plan in New York State

Applications for oral examinations open to residents and non-residents of New York State are being continuously accepted for: Assistant District Health Officer and Senior Public Health Physician (Tuberculosis Control), beginning salary $6,154 with annual increments to $6,910; District Health Officer, $6,700 to $8,143; and Associate Public Health Physician (Tuberculosis

Control) and Associate Public Health Physician (Venereal Disease Control), $7,279 to $8,143.

Because of rapidly expanding programs and because there are more than twenty vacancies in higher paying positions in the state and local health departments, the opportunities for promotion will be unusually good after six months to one year of service. Other advantages are a month's vacation annually, liberal sick leave, and participation in the state retirement plan.

Qualifications for all positions include citizenship; graduation from an approved medical school; license or eligibility for license to practise medicine in New York State; one year's satisfactory internship or equivalent; successful completion of a postgraduate course in public health of one academic year in residence, approved by the New York State Public Health Council; and at least six months' satisfactory, full-time experience in a responsible public health position. Experience may be substituted for the postgraduate course in public health. Additional specialized experience is required for positions other than Assistant District Health Officer. Write: State Department of Health, Albany 1, N. Y., for details.

Fellowships Available in New York State Department of Health

Dr. Herman E. Hilleboe, New York State Commissioner of Health, announces the availability of Fellowships to train physicians to qualify for public health positions in New York State.

The Fellowship carries a stipend of $3,600 per year and is for one year or more, depending upon the training required. The content of the training is varied in accordance with the position for which the physician is being prepared. The types of training may be roughly grouped in four categories: Health Officer, TB Physician, Clinical Consultant, and Laboratory Director.

Further information and application forms may be obtained by writing to: Dr. Franklyn B. Amos, Director of the Office of Professional Training, New York State Health Department, Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

Vacancies in New York City

The New York City Department of Health has six vacancies in the title of District Health Officer at the salary of $7,150 per annum. This position involves administrative responsibility for all activities of the Department of Health in a district with a population of approximately 250,000. Candidates must have an M.D. degree and one year of approved internship. In addition, they must have an M.P.H. degree and three years of experience as a health officer or assistant health officer or in another administrative public health position, or a satisfactory equivalent of this education and experience. Local legislation requires three years of residence in New York City immediately prior to appointment. This requirement will probably be waived in the case of outstanding applicants. Interested applicants are to write to the Bureau of Personnel of the New York City Dept. of Health, 125 Worth Street, New York 13, N. Y.

Opportunities in West Virginia, March, 1949

The following positions are now open in West Virginia:

Nutritionist I	$2,760–3,240
Nutritionist II	$2,520–3,000
Dental Clinician	$3,600–4,800
Dental Hygienist I	$2,400–2,880
Dental Hygienist II	$2,040–2,520

For further information write to: Mr. Paul B. Shanks, Administrative Assistant, State of West Virginia, Department of Health, Charleston 5, W. Va.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Medical director; health service of national organization; public health physician with administrative experience required; $9,000. (b) Student health physician to serve as medical consultant; one of country's largest universities; $7,500-$8,000. (c) Public health physician, experienced in directing public health program and in teaching, to join faculty, department of public health, medical school in South America, command of Spanish required. (d) County health officer; Pacific Northwest; $7,200 plus ample traveling allowance. (e) Woman physician to direct student health program on woman's campus; state university; fall appointment. (f) Director; city-county health department; staff of fourteen; town of 45,000; Middle West. (g) Public health physicians for administrative positions; city and county health departments; $8,000-$10,000; East. (h) Physician to direct health and physical education; public schools, enrollments, 16,000; faculty 6,000; well staffed department; town of 75,000; Middle West. PH3-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Coördinator of training; preferably candidate with Master's degree in public health and four-five years' experience; $5,000. (b) Associate nutrition consultant; department of health; outside Continental United States; $4,800-$6,000. (c) Sanitary chemist; research appointment in field of environmental sanitation; outside Continental United States. (d) Sanitary engineers, public health engineers, and specialists in fields of malaria and insect control; positions of considerable responsibility; South America. (e) Public health nurse to serve as health educator; collegiate school; duties include teaching hygiene; university medical center; West. PH3-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Public health supervisor to conduct generalized nursing program including school health services; city health department, Middle West; $4,500-$5,000. (b) Chief nurse; new blood center; public health training required; blood bank or operating room experience desirable; duties consist of responsibility of blood program nursing activities; including mobile units; West. (c) Supervisor; newly organized visiting nurse service; independent agency; challenging opportunity; vicinity New York City. (d) Public health nurse to direct out-patient department; university hospital, 400 beds; $3,600 increasing to $6,000. (e) Staff nurses; generalized program; interesting location, California, $245-$315, according to experience. PH3-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health administrator; B.A., M.S., M.D., eastern schools; Master of Public Health, Johns Hopkins; several years director of public health program in foreign country; eight years, professor of preventive medicine and public health, university school of medicine; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health dentist; Master's degree in public health; experience includes considerable research on problems of dental caries; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; Bachelor's degree; since 1940, department of public sanitation, municipal health department serving as chief chemist and director; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary chemist; B.S. (Major: Entomology); graduate training in bacteriology, biochemistry; five years, sanitary chemist, metropolitan health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.S. (Major: Public Health; Minor: Health Education); four years, sanitarian, county health department; past several years, director of health education, county health department; in early thirties; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse is available for executive position; B.S. in Public Health Nursing; M.A. in Administration; Ed.D. Nursing Education; seven years, teaching her specialty; four years, public health nursing administration; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

THE WORLD'S CHILDREN STILL NEED HELP

It will be remembered that the United Nations' Appeal for Children of 1948 had a goal of $60,000,000 to be raised in the United States. Although eminently successful in South Africa, Australia, New Zealand, Newfoundland, Canada, Iceland and the Scandinavian countries, the appeal failed lamentably in the United States, not more than half a million dollars having been raised for this country through private subscriptions for the United Nations International Children's Emergency Fund.

This Fund now announces that there is still opportunity for the people of the United States to share in the program by sending contributions directly to the Children's Emergency Fund, which is part of the United Nations.

Children's programs are being carried on in 13 European countries, China, 8 or 9 other countries in the Far East, and in Mexico. In Europe the program has up to the present been largely a feeding program but, with the abatement of the food crisis, is becoming more and more a medical program with chief emphasis upon tuberculosis control. In the Far East and Mexico, the program has been entirely medical, largely in the field of malaria and tuberculosis control.

Martha M. Eliot, M.D. traveled extensively in Europe in 1947 and 1948 as Chief Technical Consultant to the Children's Emergency Fund and still serves it in a consultant capacity. Henry F. Helmholz, M.D., of the Mayo Clinic has recently returned from Europe after a year's service as Chief Medical Consultant to the Fund.

Contributions to the child saving work of the Fund may be sent to the United Nations International Children's Emergency Fund, 405 E. 42nd St., New York.

DENTAL HEALTH BUREAU IN NEW YORK STATE

The New York State Department of Health recently moved to meet the increasing responsibilities of its expanded dental health program by giving its dental health section the status of a department bureau. The new program calls for intensification of the control of dental decay by all known methods. Special emphasis is being placed on the use of sodium fluoride on the teeth of children of school age or younger. The program also calls for more intensive postgraduate education for dentists in the diagnosis of cancer of the mouth since at least 10 per cent of all malignant cancers are found in and around the mouth, according to Herman E. Hilleboe, M.D., State Health Commissioner.

Other elements in the program are the correction of seriously crooked teeth and malformed jaws in children, especially when the defects are considered a handicap to the growth and development of the child, preventive orthodontics, and industrial dental hygiene.

David B. Ast, D.D.S., who has been director of the dental health section, Bureau of Maternal and Child Health, will head the new bureau.

66 HEALTH CENTERS APPROVED

By the end of October, 1948, a total of 540 project applications for federal grants under the Hospital Construction Act had been approved by the Surgeon General. More than 10 per cent of these, 66 in number, were health centers and 3 were health department laboratories.

ROBERT GOULD RESEARCH FOUNDATION GRANT TO JOHNS HOPKINS

Dr. Detlev W. Bronk, newly installed President of Johns Hopkins University, Baltimore, has announced that the Robert Gould Research Foundation, Cincinnati, has made a grant of $5,000 for research in 1949 by Professor E. V. McCollum, Professor Emeritus of Biochemistry at the School of Hygiene and Public Health. The grant is intended to assist Dr. McCollum to continue his experiments in the chemistry of nutrition, particularly the separation in pure form of amino acids.

The Robert Gould Research Foundation is devoted primarily to the advancement of the science of nutrition. Other recipients of grants-in-aid from the Foundation are Cornell University, Ohio State University, University of Toronto, the University of Wisconsin, the National Research Council and the University of Cincinnati to which the Foundation has given a comprehensive library on nutrition.

HERMANN M. BIGGS MEMORIAL LECTURE

Howard A. Rusk, M.D., professor and chairman, department of rehabilitation and physical medicine, New York University College of Medicine, and Associate Editor, *The New York Times*, will deliver the annual Hermann M. Biggs Memorial Lecture of The New York Academy of Medicine at the Academy's Hosack Hall on April 7, 8:30 P. M. The subject of the lecture will be "The Medical, Social, and Public Health Aspects of Rehabilitation," and is open to the general public.

DR. JOHN WHITNEY LEAVES NEW ORLEANS FOR AMERICAN RED CROSS

The resignation of John M. Whitney, M.D., as City Health Superintendent of New Orleans, effective February 1, was recently announced. Dr. Whitney is a graduate of the Tulane University Medical School and was appointed Superintendent of Health in March, 1941. According to the announcement, his new position will be that of Medical Director for the Eastern Division of the American National Red Cross.

Dr. Whitney served for some years as Secretary of the Southern Branch, American Public Health Association, and the 1948 meeting of the Branch was held under very favorable auspices in New Orleans.

WISCONSIN PUBLIC HEALTH CONFERENCE

The Wisconsin Public Health Conference of December 20 and 21, arranged by the State Public Health Council and sponsored jointly with the State Board of Health, the Wisconsin Public Health Association, and the University of Wisconsin, addressed itself to making the state's citizens community public health conscious. The first day was devoted to the problem of local health units, their development through local health councils, their functions, and their administrative organization. These subjects were dealt with by a panel made up of Drs. John W. Ferree, Roscoe P. Kandle, Vlado A. Getting, and Haven Emerson.

The second day was devoted to the more detailed discussion of specialized activities of a local health department—sanitation, laboratory, mental hygiene, public health nursing, dentistry, and hospital and health department coördination—with a panel of six including Ellis S. Tisdale, Margaret Taylor, and Drs. G. D. Cummings, Frederick S. McKay, Paul H. Stevenson, and Basil McLean.

The Wisconsin Public Health Association was fully organized at this meeting with a constitution and by-laws designed to make it eligible for affiliation with the A.P.H.A.

PUBLIC HEALTH PRACTICES INSTITUTE FOR VETERINARIANS

To give the veterinarian better understanding of public health objectives and

practices, the Illinois Department of Public Health is sponsoring an Institute on Public Health Practices for Veterinarians to be held in Springfield, Ill., March 21–March 23, 1949, to which all veterinarians are invited. The program has been designed better to acquaint veterinarians with the three basic public health practices, namely, epidemiology (disease reporting), public health education, and disease prevention and control. Participants in the program have been selected from both veterinary and public health fields upon a basis of their experience and qualifications in these fields.

Though not specifically stated, this Institute is presumably open without fees to veterinarians both in Illinois and outside the state. Hotel accommodations are being handled by the Secretary of the Convention Department, Springfield Chamber of Commerce, Springfield, Ill.

NORTH CAROLINA SUMMER INSTITUTE OF STATISTICS

The Institute of Statistics of the University of North Carolina announces a summer session, June 9–July 19, 1949, at Chapel Hill. Intensive instruction will be offered for the benefit of:

1. Research scholars in other sciences who want a practical working knowledge of statistical theory
2. Statistical consultants in various fields
3. Those preparing to teach statistics or to develop statistical theory
4. Students working toward a degree in applied or theoretical statistics

Several applied courses will deal with statistical analysis and designs for research work in medicine, public health, and nutrition.

Among the staff are the following:

G. W. Snedecor, Director of the Statistical Laboratory, Iowa State College and author of the textbook, *Statistical Methods*

D. J. Finney, lecturer in the design and analysis of scientific experiment, University of Oxford, England

J. Wolfowitz, Associate Professor, Department of Mathematical Statistics, Columbia University

R. C. Bose, recently professor, Calcutta University, India

Futher information from Gertrude M. Cox, Director, Institute of Statistics, the University of North Carolina, Box 168, Chapel Hill, N. C.

RICHLAND COUNTY HEALTH NEWS

December, 1948, saw the first issue of *Your Health,* sired jointly by the Mansfield-Richland County (Ohio) Health Department, the County Tuberculosis Association, and the Mansfield unit of the American Cancer Society. Starting with the maxim "Health begins with education," its aim is to make general knowledge in its community of 75,000 what is at present known about health to only a few, and thus increase the average expectation of life about ten years. Richland County Health Department, Mansfield, Ohio.

PHILADELPHIA HEALTH SURVEY

A city-wide health survey of Philadelphia is being conducted by the Health and Welfare Council under the general supervision of an executive committee appointed by the Council, the City Planning Commission, and the Philadelphia Department of Public Health. The survey will be made jointly by Roscoe P. Kandle, M.D., and Carl E. Buck, Dr.P.H., Field Director and former Field Director respectively, of the American Public Health Association. Among other uses the study will serve as a basis for planning the health center administration of the city health department.

DR. DONALD DUKELOW APPOINTED A.M.A. BUREAU CONSULTANT

The appointment of Donald A. Dukelow, M.D., of Minneapolis as Medical Consultant in Health and Fitness of the American Medical Association Bureau of Health Education, Chicago, was re-

cently announced. Dr. Dukelow has been Director of the Committee on Medical Care of the Community Chest and Council of Hennepin County, Minnesota. He is the Secretary of the Health Education Section of the A.P.H.A. The appointment will become effective March 1.

HEALTH INSURANCE BILLS INTRODUCED INTO 81ST CONGRESS

Bills identical with S 1320—the Murray-Wagner-Dingell bill for compulsory health insurance of the 80th Congress—were introduced into both House and Senate in the opening days of the 81st Congress. The Senate bill, introduced by Senators Murray, Wagner, and McGrath is numbered S 5. The House bills, HR 345 and HR 783, were introduced respectively by Representative Celler and referred to the House Ways and Means Committee, and by Representative Dingell and referred to the Committee on Interstate and Foreign Commerce.

FILM CATALOG-UTILIZATION GUIDE

The Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga., has prepared a looseleaf guide describing the films and film strips that have been prepared by the Service. The *Guide* is divided into sections, depending upon the subject matter. Each film or film strip is described on a separate sheet, with blank space for the user to make comments concerning its applicability and value. It is not anticipated that everyone using films would have need for the entire *Guide*. On the contrary, it is anticipated that each person will request the portion of the *Guide* of particular interest to him. The *Guide* is classified in the following headings: Anatomy and Physiology, Entomology, Hospitals, Insect Vector Control, Laboratory Techniques, Parasitology, Quarantine, Rat Borne Disease Control, Sanitation and Sanitary Engineering, Tropical Diseases and Infectious Diseases, Venereal Disease Control, Veterinary Medicine and Activities, and Visual-Aids Techniques.

LIFSON TO HEART ASSOCIATION

Sol S. Lifson is the latest addition to the staff of the American Heart Association in its program of expanding service and developing local heart associations. As supervisor of field services of the public health division, he will be responsible for the program development and community organization field services of the association.

In this capacity he will be working in the same relationship to John W. Ferree, M.D., the director of the division, that he has occupied for the last year and a half in the National Health Council. Both men were formerly on the staff of the Council, Dr. Ferree having gone to the heart association on January 15, Mr. Lifson on March 1.

Before coming to the National Health Council, Mr. Lifson was for four years health education consultant in the U. S. Public Health Service, and has had health education teaching experience in the Massachusetts Institute of Technology, New York University, and Yale University where he is currently lecturer in public health with the rank of assistant professor. He is Secretary of the School Health Section of the American Public Health Association and member of the executive committee, National Publicity Council.

AMA'S PR DOCTOR

In August, 1948, the American Medical Association issued the first of its "The PR Doctor Series." This is a bi-monthly four-page public relations news letter designed "to encourage the development and conducting of public relations projects by state societies, and their coöperation toward common public relations goals." As such it gives a round-up of current trends, activities,

and opinion on medical public relations topics.

PR Doctor is distributed to trustees, officers, and members of the House of Delegates of A.M.A. and to officers, journal editors, and public relations committees of state societies. It is prepared in the office of the executive assistant for coördination and public relations, Lawrence W. Rember, 535 N. Dearborn St., Chicago 10.

DR. KOGEL, NEW YORK CITY HOSPITAL COMMISSIONER

On February 1, Marcus D. Kogel, M.D., became New York City Commissioner of Hospitals, succeeding Edward D. Bernecker, M.D., resigned. As such, he will have charge of the city's 28 municipal hospitals with a total bed capacity of more than 20,000, and a patient census of three per cent above capacity on the day he took office. The annual departmental budget is nearly $70 million.

Except for two periods of service in the Army Medical Corps, Dr. Kogel has been in the Department of Hospitals since it became a separate department exactly 20 years before he took office as Commissioner. He started as Deputy Medical Superintendent of Cumberland Hospital, then became Medical Superintendent of Queens General Hospital, and for the past two years has been General Medical Superintendent of the Hospital Department. During the recent war he was chief of preventive medicine of the China Theater and was awarded the Legion of Merit for his services while in that assignment. He is a Fellow of the American Public Health Association.

Among the new projects announced for the department by Commissioner Kogel are: the extension of home care service to relieve the shortage of hospital beds, reorganization of clinic services, breaking the "bottleneck" of x-ray and laboratory services which now contributes to bed shortages, and an experimental program to relieve the nurse shortage.

SAFE DISPOSAL OF RADIOACTIVE WASTES

In January the Atomic Energy Commission sponsored a two day seminar in Washington, D. C., on disposal of radioactive wastes, to which were invited water works and sanitary engineers, both from private industry and from state and federal government departments. In addition to scientists from the federal atomic energy projects, Abel Wolman, Dr. Eng., head of sanitary engineering at Johns Hopkins University, was among the speakers. The conclusions in part are: "So far as external ionizing radiation is concerned, there is no hazard with proper methods of disposal. From the standpoint of internal radiation, to the best of our knowledge, the precautions we are utilizing are giving adequate protection."

FOOD INSPECTORS' AND SANITARIANS' SHORT COURSE

The 6th annual Dairy and Food Inspectors' and Sanitarians' School will be held at Michigan State College on April 4–7 for the busy worker in these fields to secure the latest information on many aspects of food inspection with a minimum of time and expense. Details of the school and a copy of the program may be obtained from Dr. W. L. Mallmann, Department of Bacteriology and Public Health, Michigan State College, East Lansing.

DR. RINGLE RESIGNS AS STATE HEALTH OFFICER

Arthur M. Ringle, M.D., resigned as Director of the Washington State Department of Health as of December 1 to assume a medical administrative post with the Branch office of the Veterans' Administration in Seattle.

Dr. Ringle has served as Director since January 22, 1945, having formerly

been Health Officer of the Walla Walla-Benton-Franklin District.

During Dr. Ringle's administration four new programs were added to the State Department's work, including cancer control, mental hygiene, hospital planning, and conservation of hearing. Dr. Ringle is the President-Elect of the Western Branch A.P.H.A., and special consultant to the Mental Hygiene Division, U. S. Public Health Service.

The administrative duties of the department have been assumed temporarily by J. A. Kahl, M.D., Assistant Director, until a successor is appointed.

BILLS IN HOUSE FOR WELFARE CABINET POST

Representatives Harris and Dawson have introduced into the 81st Congress HR 184 and HR 782, providing for departmental status and thus cabinet rank for its administrator for the Federal Security Agency. The bills will be considered by the House Executive Expenditures Committee of which Congressman Dawson is chairman.

ROYAL SANITARY INSTITUTE MEETING TO BE HELD IN BRIGHTON

It has been announced from England that the meeting of the Royal Sanitary Institute will be held in Brighton, May 23–27.

It is requested that Fellows and members of the American Public Health Association who expect to be in Great Britain during May will communicate with the Executive Secretary.

WASHINGTON LOCAL HEALTH OFFICERS RECOMMEND LEGISLATION

The Washington State Local Health Officers Association at its annual meeting late in 1948 recommended the following measures for consideration by the state legislature:

1. Reorganization of the State Board of Health to have legal authority for all state-wide public health measures and to consist of 9 members appointed for 6 year terms by the Governor with Senate approval. One would come from each Congressional district, plus 3 members at large. The board now has 5 members, appointed and serving at the pleasure of the governor.

The new board would be empowered to select the State Director of Health for a 6 year term. At present he is appointed by and serves at the pleasure of the governor. Under the proposed legislation, he must be a qualified physician with postgraduate training in public health and 5 years' experience in public health administration. His salary would be fixed by the Board. At present a physician is specified, but no public health experience is required.

2. Legislation enabling cities of more than 100,000 population to combine into city-county health departments.

3. The health officers ask that the 3 cents per capita now contributed by the state to local full-time health departments be raised to 30 cents, and that a total of $625,000 a year be made available for subsidy to full- and part-time health departments.

1949 OFFICERS OF MUNICIPAL PUBLIC HEALTH ENGINEERS

At the recent meeting of the Conference of Municipal Public Health Engineers in Boston, at the time of the A.P.H.A. annual meeting, the following officers and Executive Committee were elected:

Chairman—Morton Hilbert
Vice Chairman—Herbert Dunsmore
Secretary-Treasurer—Arthur H. Herberger
Executive Committee—
William H. Cary—1949
William J. Dixon—1949
William R. Hardy—1950
Henry D. Peters—1950
Joel C. Beall— 1951
Charles L. Senn—1951

The Conference adopted a resolution recognizing the value of the Engineering Section Project of A.P.H.A. and requesting the Executive Board to continue it.

RUSSIA INDICATES WITHDRAWAL FROM WHO

It was announced in Geneva on February 16 by the World Health Organization that the Soviet Union, together with the Ukraine and Byelorussia, have notified WHO that they no longer consider themselves members of WHO.

According to Dr. Brock Chisholm, Director General of WHO, the withdrawal of the Soviet Union from the only specialized agency of the United Nations to which it belonged came without warning. The Soviet Union's reason was given as failure of WHO to carry out the tasks set forth by the World Health Conference of 1946. Moscow was quoted as saying "The tasks connected with international measures for the prevention and control of diseases and with the spread of the achievements of medical science are not being accomplished." Also, "At the same time, maintenance of the organization's swollen administrative machinery involves expenses which are too heavy for member states to bear."

Dr. Chisholm pointed out in his reply that the constitution of the organization contains no provision for the withdrawal or the expelling of a member. The United Nations had decided that membership in WHO should be permanent and unretractable. He urged that other governments attempt to persuade Russia to reconsider inasmuch as the organization had been in full operation only four and a half months. The organization is short of money and is newly acquiring staff. It was stated that the Soviet Union, the Ukraine and Byelorussia have made no payment on their contributions which total to date $350,000. Dr. Chisholm said that WHO had repeatedly asked the Soviet Union for experts to act on its technical committees and it was said by a WHO spokesman that Russia had worked side by side with other members of WHO in trying to halt the outbreak of cholera in Egypt, the increase of tuberculosis in Central Europe, and malaria epidemics in Greece, Yugoslavia, and other countries.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH NOW IN OPERATION

Readers of the *American Journal of Public Health* have been advised of the incorporation of the American Board of Preventive Medicine and Public Health on June 29, 1948, and the organization of the Board of Trustees of the corporation with representatives from the American Medical Association, the American Public Health Association, the Canadian Public Health Association, the Association of Schools of Public Health, and the Southern Medical Association.

According to an announcement by Ernest L. Stebbins, M.D., of Baltimore, Secretary of the Board, the applications of the American Board of Preventive Medicine and Public Health, Inc., for approval by the Advisory Council on Medical Specialties and by the Council on Medical Education and Hospitals of the American Medical Association were approved in early February. Dr. Stebbins has indicated that the Board is now officially in operation and that it is prepared to receive applications from physicians wishing to have their specialty qualifications in preventive medicine and public health certified. Correspondence should be directed to Dr. Stebbins at 615 N. Wolfe Street, Baltimore, Md.

In addition to the Trustees of the Board whose names have already been published (*A.J.P.H.*, Vol. 38, No. 9, September 1948, page 1348; November 1948, page 1619), three newly elected Trustees at large attended the meeting held in Chicago in February. These *included:*

Gaylord W. Anderson, M.D., Minneapolis, Minn., M. R. Kinde, M.D., Battle Creek, Mich., and Emil Palmquist, M.D., Seattle, Wash.

As already announced, it is anticipated that the Interim Board on Preventive Medicine and Public Health, which was created by the Surgeons General of the U. S. Public Health Service, U. S. Air Corps, U. S. Army, and U. S. Navy, for the certification of medical specialists in public health and preventive medicine from the Government Services, will be terminated in view of the organization of the American Board of Preventive Medicine and Public Health, Inc. In view of the approval of the latter by the action already noted it was expected that 315 applications for certification from the Services which are now in the hands of the Interim Board would be transferred to the American Board of Preventive Medicine and Public Health for review.

It is anticipated that the new Specialty Board will hold its first examination in Washington, D. C., on May 15 and 16, 1949, and that the next examinations will be held in New York City preceding the 77th Annual Meeting of the American Public Health Association on October 22 and 23. Applications are said to close 60 days before the announced dates.

The *American Journal of Public Health* will carry in a forthcoming issue a digest of the conditions to be met by those who are certified by the Board.

DR. ROSEN DIRECTOR OF BUREAU

George Rosen, M.D., Ph.D., has been named director of the Bureau of Health Education of the New York City Health Department, succeeding Israel Weinstein, M.D., now on terminal leave. Except for a three year period on military leave, Dr. Rosen has been with the department since 1941, first as clinic physician in the Bureau of Tuberculosis and, since 1946, as district health officer. He edits a column "Public Health in Foreign Periodicals" in the *American Journal of Public Health* and is a member of the Editorial Board.

NEW HAMPSHIRE MEDICAL SOCIETY APPROVES STATE PROVIDED LOCAL HEALTH SERVICES

A constant reader and contributor sends the following to News from the Field, taken from the Proceedings of House of Delegates, New Hampshire Medical Society, June, 1948, reported in the *New England Journal of Medicine:*

State legislative support for more adequate local health services in New Hampshire will be sought by the state medical society, according to action taken by the House of Delegates in June, 1948, on a report of its Committee on Public Health. The report pointed out that local services could best be provided by a series of district offices staffed by full-time workers from the State Department of Health. A demonstration in Exeter for the past six years proved the value of regionalization of state services. Development of direct services from local units or from county units was deemed undesirable because of financial and personnel shortages for a multiplicity of small part-time units. The new dental program of the state health department was cited as a successful device for bringing specialized services to the public.

DR. MELENEY TO STUDY PUBLIC HEALTH IN NEAR EAST

Henry E. Meleney, M.D., Hermann M. Biggs Professor of Preventive Medicine, New York University-Bellevue Medical Center, New York City, left New York on February 8 for Beirut, Lebanon, where during a six months sabbatical leave he will make a study of public health teaching needs at the American University.

Dr. Meleney's study under a grant from the Commonwealth Fund will form the basis of a future program to meet the needs for the development of public health personnel to promote and maintain the health of industrial populations as well as for general improvement in public health.

BIBLIOGRAPHY ON PLUMBING AND PUBLIC HEALTH

The U. S. Public Health Service has recently made available a revised bibli-

ography on "Plumbing and Public Health." It includes items up to July 1, 1948, and replaces the previous bibliography published in 1940. Five hundred thirty-one references are contained in the bibliography. Copies may be obtained from the U. S. Public Health Service, Division of Sanitation, Washington, D. C.

CORRECTION

The January, 1949, issue of the *American Journal of Public Health,* page 6, among the High Points of the Boston meeting, quotes Mr. J. J. Bloomfield on Shaver's Disease, which it states was first reported in Kansas by Dr. Shaver.

Through a stenotypist's error this should have indicated that Dr. Shaver first reported the disease in Canada.

PERSONALS

DEWITT S. ABELL † is now associate chief of party and chief engineer, health and sanitation division, Institute of Inter-American Affairs, after serving as chief sanitary engineer, UNRRA in China. He can be addressed c/o American Embassy, Montevideo, Uruguay.

LOUISE AGNEW, R.N., was named to the Lawton-Comanche County (Oklahoma) Health Department, early in December. KENNETH C. KIDD, was appointed Sanitarian of the same county.

F. KENNETH ALBRECHT, M.D.,† formerly of the U. S. Public Health Service and more recently medical editor for The Williams & Wilkins Company, Baltimore, Md., has been appointed Director of the Division of Tuberculosis Control, Kansas State Department of Health.

EDWARD M. BERNECKER, M.D., has resigned as New York City Commissioner of Hospitals to become Administrator of Hospital Services for the New York University-Bellevue Medical Center. In the City Hospital Department since 1920, Dr. Bernecker had been Hospital Commissioner since 1942.

CARROLL S. BRINSFIELD has been appointed Maryland State Food and Drug Commissioner, to succeed the late A. L. SULLIVAN.

ROWLAND BURNSTAN, who has served for 2 years as Executive Director of the New York State Charities Aid Association, New York City, has resigned to enter private business.

HELEN CANNON † has been appointed director of the section on Social Services of the Preventive Medicine Division of the Colorado State Department of Public Health. This section has been developed to provide generalized social service consultants to the several geographical areas of the state.

ALTA ELIZABETH DINES * retired on December 31 as Director of the Department of Educational Nursing of the Community Service Society of New York after serving the agency for 25 years. She is a member of the nursing scholarship committee of the National Organization for Public Health Nursing and of the Isabel Hampton Robb Memorial Fund which provides scholarships for nurses for advanced study, and is 1st vice-president of the Harmon Association for the Advancement of Nursing.

VIVIAN V. DRENCKHAHN, M.P.H.,* has been appointed Director of the Health Education Service of the National Tuberculosis Association, New York, on which staff she has served for 3 years.

DAVID R. L. DUNCAN, M.D.,† formerly a school physician of the Denver public schools, began his duties as Health Officer for the Las Animas-Huerfano (Colorado) Health Department on January 1.

GEOFFREY EDSALL, M.D.,* Director of the Division of Biologic Laboratories of the Massachusetts State Depart-

ment of Health, has taken over the editorship of the Journal of Immunology, the only such technical publication specializing in this field in the English language.

PROFESSOR GORDON M. FAIR,* Dean of the Graduate School of Engineering and Gordon McKay Professor of Sanitary Engineering at Harvard University, has been appointed Master of Dunster House, Cambridge, Mass., where he has taken up residence with the 371 students and 12 staff members.

GEORGE E. FARRAR, JR., M.D., Associate Professor of Medicine at Temple University, Philadelphia, Pa., has been appointed Medical Director for Wyeth, Inc., in the same city, to advise the management on medical affairs. He will continue his post at Temple University as co-author of the U. S. Dispensatory.

LLOYD J. FLORIO, M.D., Dr.P.H.,* has been promoted to Professor and Head of the Department of Preventive Medicine and Public Health, recently established at the University of Colorado Medical School, Denver. Dr. Florio has recently been on loan to the Denver Department of Health as Health Officer, pending the appointment of JAMES P. DIXON, JR., M.D.†

LUKE W. FRAME, M.D., Director, Bureau of Communicable Disease Control, West Virginia State Health Department resigned November 30 to assume directorship of the newly created Huntington-Cabell Health Department.

LLOYD H. GASTON, M.D., Dr.P.H.,† has been appointed Director of St. Luke's Hospital, New York City, effective January 1. He has been Acting Director since the retirement on July 1, because of ill health, of CLAUDE W. MUNGER, M.D.

AGNES E. GERDING, R.N.,† who has served as Executive Secretary of the Suffolk County Tuberculosis and Health Association, Long Island, N. Y., has resigned to become an Associate in Program Development for the National Tuberculosis Association, New York City.

LOWELL S. GOIN, M.D., of Los Angeles and J. ELLIOTT SCARBOROUGH, JR., M.D., of Atlanta were recently appointed to the National Advisory Cancer Council by LEONARD A. SCHEELE,* Surgeon General of the U. S. Public Health Service.

MANUEL GONZALEZ-RIVERA, M.D.,† who has been working in the Institute of Public Health and Tropical Diseases and in the School of Public Health, Mexico City, has been appointed Director of the National Health Museum, Mexico City.

WILLIAM S. GROOM,† for 8 years President of the Public Health Federation of Cincinnati and for the past 4 years its volunteer Director of Health Education, has received the Award of Honor for 1948 for distinguished service to the cause of public health in Greater Cincinnati.

KENNETH W. HAWORTH, M.D.,† formerly Health Officer of the Humboldt County Health Department, has become the first full-time Health Officer of Napa County, California.

MURIEL CROTHERS HENRY, has been appointed to handle public relations for the Committee on Careers in Nursing, sponsored by the six national nursing organizations. Mrs. Henry was most recently Director of Public Relations for the Chicago Travelers Aid Society.

R. L. HOWELL has been named Sanitarian for District 1 Health Department, made up of 5 Oklahoma Counties with headquarters in Wagoner.

CECIL G. HUPP, M.D., has succeeded W. B. JOHNSON, M.D.,* as Maryland Deputy State Health Officer in Caroline County.

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* Fellow A.P.H.A.
† Member A.P.H.A.

WILLIAM H. IRELAND has been appointed Executive Secretary of the Council of Social Agencies, Akron, Ohio. Since 1946 he has been head of neighborhood services of the council.

NORMAN JOLLIFFE, M.D.,* has been appointed head of the New York City Department of Health's newly organized Bureau of Nutrition under a plan to open five additional clinics throughout the city in 1949.

HILDA H. KROEGER, M.D.,* Director of Maternal and Child Health, Arizona State Department of Health (Phoenix), has been appointed Assistant Director of Grace-New Haven Community Hospital, Conn., and Professor of Hospital Administration at Yale University.

CHARLES MACNAMARA has been named Executive Secretary of the Lake County (Illinois) Tuberculosis Association, succeeding ORPHA WHITE, deceased.

HARRIETTE M. MALONE has joined the staff of the Social Hygiene Committee, New York Tuberculosis and Health Association.

D. FRANK MILAM, M.D.,* for the past 25 years a member of the Field Medical Staff of the International Health Division of the Rockefeller Foundation, has been named National Director of the Planned Parenthood Federation of America with headquarters in New York.

ALBERTA M. MORGAN, R.N.,† is the new Nursing Consultant in Maternal and Child Health of the Public Health Nursing Division, Arizona State Health Department, Phoenix.

JAKE MILLER, KEITH HANGER and R. S. JACOBSON have recently completed training as sanitarians at the West Virginia Public Health Training Center, Morgantown, W. Va. Messrs. Miller and Hanger have now been assigned to Kanawha County and Mr. Jacobson has been assigned to District No. 1, with an office at Summersville.

RUSTIN MCINTOSH, M.D., Carpentier Professor of Pediatrics, College of Physicians and Surgeons of Columbia University and Director of the Pediatric Service, Presbyterian Hospital, New York, has been elected 1949 Chairman of the American Council on Rheumatic Fever of the American Heart Association, succeeding H. M. MARVIN, M.D. LAWRENCE LINCK,† Executive Secretary of the National Society for Crippled Children and Adults, was elected Vice Chairman.

JOHN W. R. NORTON, M.D.,* Raleigh, N. C., State Health Officer, received the first Reynolds Medal and scroll at the October, 1948, meeting of the North Carolina Public Health Association in Durham. Given in honor of former State Health Officer, CAROL V. REYNOLDS, M.D.,* the medal is awarded to the association member who presents the most outstanding address or paper at the convention.

SIR JOHN BOYD ORR, M.D.* former head of the United Nations Food and Agricultural Organization, was made a Baron according to the New Year Honors List published on behalf of King George VI of Great Britain. Sir John is an Honorary Fellow of the A.P.H.A.

SAMUEL B. OSGOOD, M.D.,* is now epidemiologist and director of the venereal disease control section of the Oregon State Board of Health (Portland). He has served as Josephine County Health Officer for the past 12 years.

W. PHILLIPS PALMER,† Consultant in Hospitals and Medical Care, West Virginia State Health Department, resigned on November 15 to join the Medical staff of the United Mine Workers Health and Welfare Fund area program in Pittsburgh, Pa.

JEROME S. PETERSON, M.D., M.P.H.,* who has been Acting Professor of Pre-

ventive Medicine and Community Health at the Long Island College of Medicine, Brooklyn, N. Y., for several months, has left for Palestine to serve with the American Friends Service Committee in the southern Palestine area near Gaza in care of refugees. Dr. Peterson is on leave from WHO for a period of 8 months for this project which is under the auspices of the United Nations.

JOHN J. PHAIR, M.D., Dr.P.H.,* who has served as Director of Health of the Louisville and Jefferson County Board of Health, (Ky.) for some years, has accepted the position as Professor of Preventive Medicine at the School of Medicine, University of Cincinnati, effective July 1, 1949. In the meantime he is serving as Acting Professor.

ADELAIDE R. ROSS,* formerly director of the department of adult health education, District of Columbia Tuberculosis Association, on February 7 became Assistant Professor of Health Education at the University of Maryland, College Park.

MAJOR ARVEY C. SANDERS,† of Crosby, Minn., is currently assigned to the Bacteriology Section of the 406th Medical General Laboratory in Tokyo, Japan, seat of the headquarters of General of the Army Douglas A. MacArthur.

DEAN THORNDIKE SAVILLE,* of New York University College of Engineering, has been appointed sanitary engineering member of the National Advisory Health Council, U. S. Public Health Service. Dean Saville has been head of the College of Engineering since 1936. He is a member of the New York State Public Health Council.

CLARENCE L. SCAMMAN, M.D.,* who recently retired as Director of the Division of Public Health, The Commonwealth Fund, New York City, has been appointed Medical Director of the Massachusetts Division, American Cancer Society, Boston, effective January 3.

DONAL SHEEHAN, M.D., formerly Director of the Commonwealth Fund, has been appointed Chairman of the Scientific Committee, New York University-Bellevue Medical Center, and Professor and Chairman of the Department of Anatomy at the New York University College of Medicine, New York City, where he will direct the overall program of teaching and research to be carried out at the center.

GLADYS SMITH, M.D., has been appointed Assistant Health Officer for the Pottawatomie County Health Department, Oklahoma.

MARY STEICHEN, M.D., M.P.H.,* of Great Neck, Long Island, N. Y., has been appointed school physician of the Great Neck public schools.

R. J. VAN DERWERKER,† Senior Sanitary Engineer, has been assigned by the U. S. Public Health Service to the Pan American Sanitary Bureau, Washington, D. C., as Chief Sanitary Engineer, succeeding DONALD L. SNOW,† who has been transferred to the National Institutes of Health.

JAMES WATT, M.D.,* of the staff of the U. S. Public Health Service, directs the Diarrheal Disease Investigations Laboratory located at the Medical School of Louisiana State University, New Orleans, where studies are under way among new-born infants. Dr. Watt serves as clinical professor of preventive medicine at Louisiana State University.

GEORGE M. WHEATLEY, M.D.,* formerly Assistant Vice-President of the Metropolitan Life Insurance Company, has been promoted to Third Vice-President and will continue in Association with DONALD B. ARMSTRONG, M.D.,* Second Vice-Presi-

* Fellow A.P.H.A.
† Member A.P.H.A.

dent in charge of the Health and Welfare Division, New York.

SAMUEL M. WISHIK, M.D.,* former assistant director of the Division of Health Services of the U. S. Children's Bureau in Washington, D. C., has been named head of the New York City Health Department's recently reorganized Bureau for Mothers and Young Children.

TOM P. WUICHET, M.B.A., who recently received his degree from Ohio State University, has joined the staff of the Ohio State Department of Health, Columbus, as Personnel Officer.

MARJORIE A. C. YOUNG, M.P.H.,† has been appointed Consultant in Education of the National Society for the Prevention of Blindness, New York. Miss Young has been Associate Professor of Health Education for the past 2 years at Springfield College, Springfield, Mass.

JOHN W. YOST, M.D., was appointed full-time Director of the Bluefield City (West Virginia) Health Department, on November 1, 1948. Dr. Yost, a practising physician and part-time Health Officer of Princeton, succeeds RICHARD C. NEIL, M.D., who served on a part-time basis since the death of D. B. LEPPER, M.D.

Deaths

ROSE K. BUTLER, R.N.,† Executive Director, Visiting Nurse Association, Holyoke, Mass. (Public Health Nursing Section).

CECIL K. CALVERT,* Superintendent of Purification Department, Indianapolis Water Co. (Engineering Section).

ARTHUR T. DAVIS, Health Commissioner of Suffolk County, New York, since the county's health department was formed in 1929, died December 17.

DANIEL W. MEAD,* of Mead and Hunt, Consulting Engineers in Madison, Wis., died October 13, 1948 (Engineering Section).

MICHAEL J. NESTOR, M.D., City Registrar and Superintendent of the Providence (Rhode Island) Health Department from 1935 until he resigned in November, died January 9 at the age of 72.

Conferences and Dates

American College of Physicians. New York, N. Y. March 28–April 1.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association:
Arizona Section. April 1–3.
Canadian Section. April 24–27.
Indiana Section. April 20–22.
Kansas Section. April 21–22.
Montana Section. April 8–9.
New Jersey Section Outing. June 23.
New York Section. April 28–29.
Pacific Northwest Section. May 12–14.

Antibiotics Study Section of the National Institutes of Health. Second National Symposium on Recent Advances in Antibiotics Research. Washington, D. C. April 11–12.

Arizona Public Health Association. Hassayampa Hotel. Prescott, Ariz. May 12–13.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Colorado Public Health Association. Vail Hotel, Pueblo, Colo. May 23–24.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Florida Public Health Association. George Washington Hotel. West Palm Beach, Fla. October 6–8.

Georgia Public Health Association. DeSoto Hotel, Savannah, Ga. May 2–4.

Health Officers and Public Health Nurses of New York State. Lake Placid, N. Y. June 20–23.

Illinois Public Health Association. La Salle Hotel, Chicago, Ill. April 7–8.

International Association of Milk and Food Sanitarians. Deschler-Wallick Hotel, Columbus, Ohio. October 20–22.

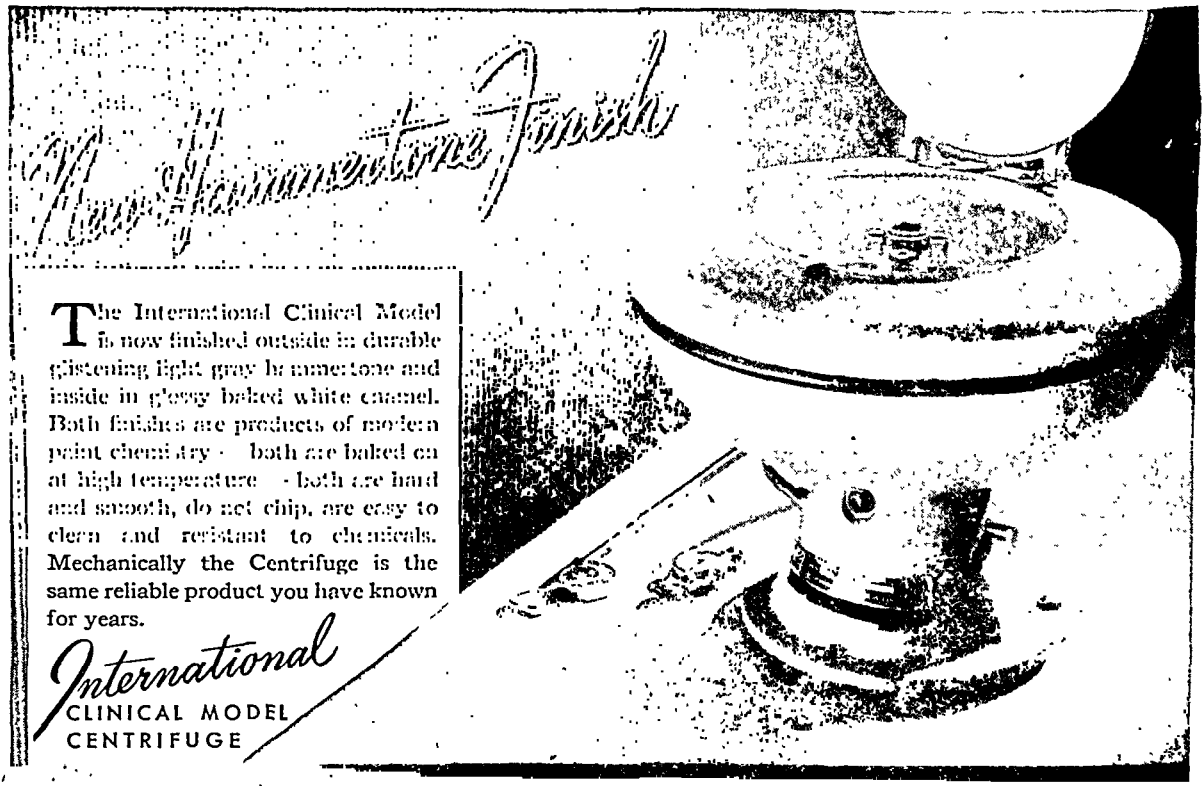
International Congress on Rheumatic Diseases. New York, N. Y. May 30–June 3.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

* Fellow A.P.H.A.
† Member A.P.H.A.

Kansas Public Health Association. Hotel Besse, Pittsburg, Kan. April 25–27.
Massachusetts Public Health Association. Amherst, Mass. June 15–17.
Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.
Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.
Missouri Public Health Association. Jefferson City, Mo. May 4–6.
National Convention of the American Red Cross. Atlantic City, N. J. June 27–30.
National Health Council. New York, N. Y. March 25.
National Society for the Prevention of Blindness. New York, N. Y. March 16–18.
National Tuberculosis Association. Detroit, Mich. Week of May 2.
National Woman's Christian Temperance Union. Diamond Jubilee. Philadelphia, Pa. August 16–24.
New Mexico Public Health Association. Nixon Hotel. Roswell, N. M. March 23–26.
Royal Sanitary Institute. Brighton, England. May 23–27.
South Carolina Public Health Association. Gloria Theater. Myrtle Beach, S. C. May 30–June 1.
Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.
Tennessee Public Health Association. Andrew Jackson Hotel. Nashville, Tenn. May 2–4.
Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.
West Virginia Public Health Association. Daniel Boone Hotel. Charleston, W. Va. June 2–3.


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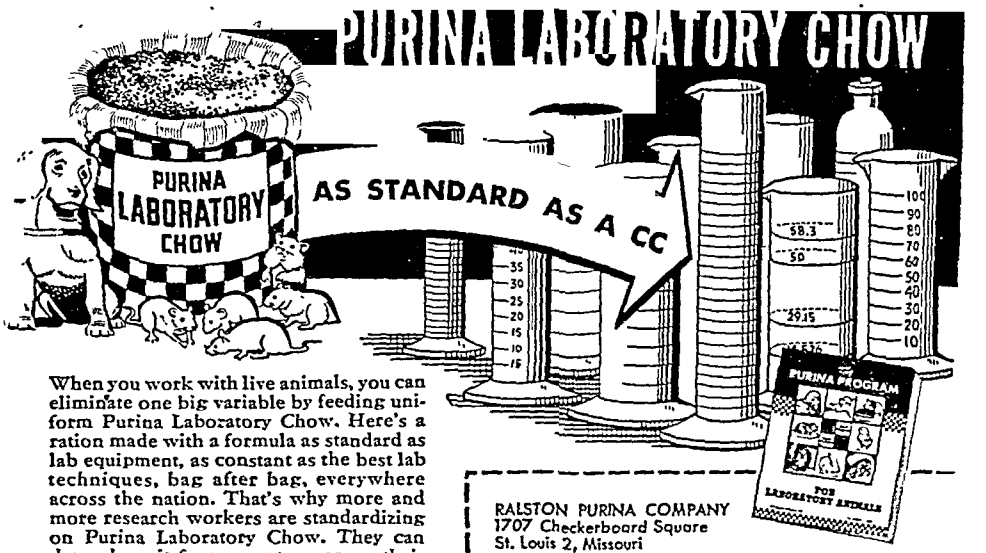
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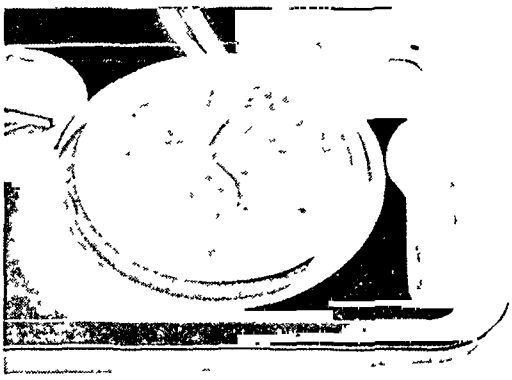
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[1] McLester, J. S.: Nutrition and Diet in Health and Disease, ed. 4, Philadelphia and London, W. B. Saunders Company, 1943.

[2] Kunde, M. M.: The Role of Hormones in the Treatment of Obesity, Ann. Int. Med. 28:971 (May) 1948.

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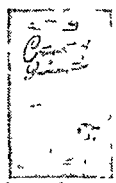
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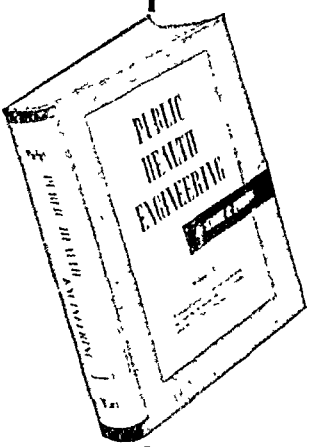
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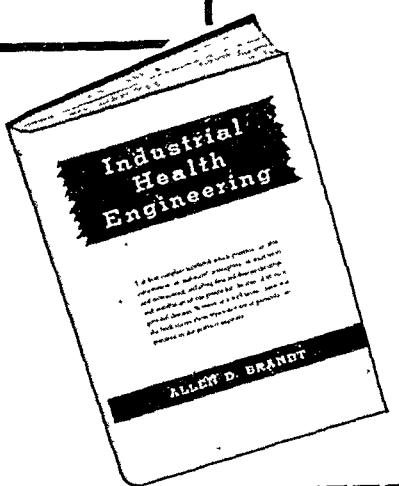


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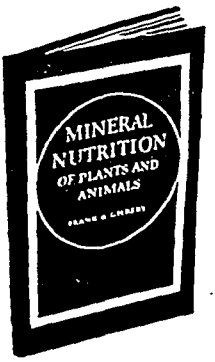
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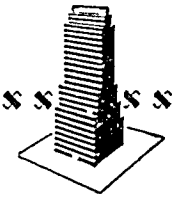
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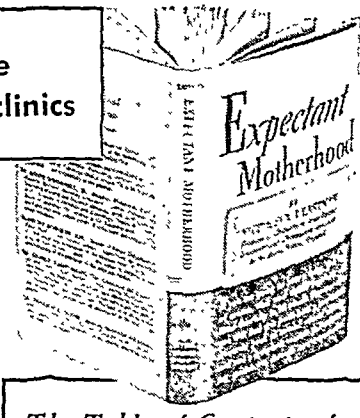
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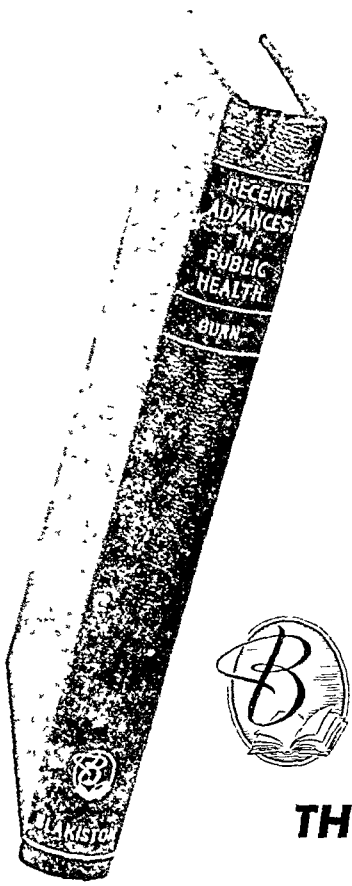
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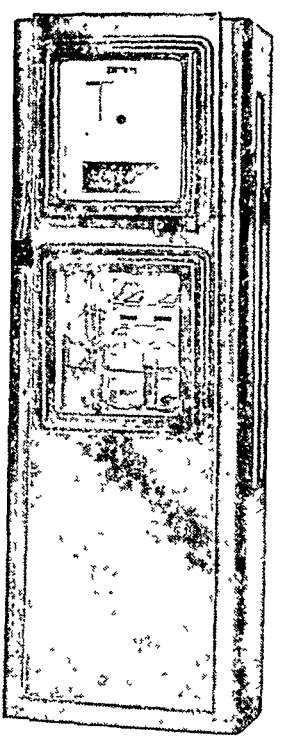
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American Journal of Public Health
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Volume 39 April, 1949 Number 4

The Health Educator's Bookshelf*

GEORGE ROSEN, M.D., PH.D.

Director, Bureau of Public Health Education, Department of Health, New York, N. Y.

Books are to be called for and supplied on the assumption that the process of reading is not a half-sleep, but in the highest sense an exercise, a gymnastic struggle; that the reader is to do something for himself.—WALT WHITMAN

Those who have read of everything are thought to understand everything too; but it is not always so—reading furnishes the mind only with materials of knowledge; it is thinking that makes what is read ours.—JOHN LOCKE

MAY I begin by pointing out that the brevity of the title of this article is not to be taken as indicative of the length of the health educator's bookshelf. Despite William Hazlitt's diatribe "On the Ignorance of the Learned," most of us would agree certainly that the acquisition of knowledge through books does not make men ignorant. Indeed, others among us may even go further and with pleasurable recollection echo Petrarch's comment that each book "also suggests the name of others, and one begets the desire of the others."

Then, too, the problems that engage our attention change with time, and they change not at random but for the most part in relation to the altering demands of the world in which we live. If an article such as this had been prepared a generation or so ago its compass and emphases would in all probability have been quite different. And the contrast is greater still when we look at the "suggestions for forming sanitary libraries" appended to the *Shattuck Report* of 1850. Only some five or six of the titles listed can be credited to health education. Today the edifice of public health is so vast and so elaborate that in surveying the literature of health education we must of necessity content ourselves with exploring only selected chambers of this imposing structure.

Finally, it should be obvious that no matter what the field of endeavor the act of selection is a form of self-expression and therefore subject to those differences that arise from variations of personality. After all, if there were no difference of opinion, there would be no horse race. And so to the heart of the matter.

* Special Review Article prepared at the request of the Editorial Board.

STAPLE FARE AND BASIC BOOKS

A bookshelf like a diet should be well balanced. To carry the dietary analogy somewhat further, the bookshelf should have a group of books that, in a sense, will be its "basic seven." Or if the reader prefers an Oslerian approach, this basic group may be considered a *Bibliotheca Prima*. These are the books to which the health educator may turn for standard knowledge and not be disappointed.

For the health educator a question of primary importance is: How can the health worker get the desired message over to the public? The answer, more than likely, is to be found in Ira V. Hiscock: *Ways to Community Health Organization* (3rd ed.), New York, Commonwealth Fund, 1939. This practical volume based on the experience of a number of official and voluntary health agencies, both urban and rural, in various parts of the country offers devices and techniques that have proved effective in teaching the public to understand community health problems. It is profusely illustrated with actual materials. A good alternative selection which is also eminently practical in approach is W. W. Bauer and T. G. Hull: *Health Education of the Public* (2nd ed.), Philadelphia, Saunders, 1942. This volume is likewise well illustrated.

In the field of public health it is now recognized that no matter how adequate the programs of official agencies may be, these must go hand in hand with the organized effort of the community. There is no standard pattern that can be offered to all communities, but some ways in which programs can be developed may be seen in *Community Organization for Health Education*. The report of a committee of the Public Health Education Section and the Health Officers Section of the American Public Health Association, Cambridge, Mass., Technology Press, 1941.

This brings us naturally to the subject of what is needed by any community in the way of public health organization. Here the health educator may turn to any one of several excellent guides. Based upon more than two decades of experience as a health officer and teacher, Harry S. Mustard has prepared a number of books on this topic. *An Introduction to Public Health* (2nd ed.), New York, Macmillan, 1944, offers an instructive and pleasant presentation. The same author's *Government in Public Health*, New York, Commonwealth Fund, 1945, is a concise guide to the development and present state of public health organization in the United States, and effectively supplements the volume previously mentioned. An alternative choice which offers a more detailed presentation is Wilson G. Smillie: *Public Health Administration in the United States* (3rd ed.), New York, Macmillan, 1947. Finally, still another standard handbook of public health organization and practice is that edited by Ira V. Hiscock: *Community Health Organization* (3rd ed.), New York, Commonwealth Fund, 1939. A fourth edition scheduled to appear in 1949 is now in preparation.

In part, at least, it is the health educator's purpose to *inform* individuals and groups about the promotion of health and the prevention of disease. To do so, the educator must have available sources of information that are reliable. First and foremost as a standard work is the encyclopedic volume by Milton J. Rosenau: *Preventive Medicine and Hygiene* (6th ed), New York, Appleton-Century, 1935. With it, the health educator should have one good medical text, for instance, Henry A. Christian: *Osler's Principles and Practice of Medicine* (16th ed.), New York, Appleton-Century, 1947, or Russell L. Cecil: *Textbook of Medicine* (7th ed.), Philadelphia, Saunders, 1947. For in-

formation on infancy and childhood, Holt's *Diseases of Infancy and Childhood* (11th ed.), New York, Appleton-Century, 1939, is a standard reference. Two publications will, in most instances, supply whatever guidance is needed on communicable diseases. These are *The Control of Communicable Diseases,* an Official Report of the American Public Health Association (6th ed.), New York, A.P.H.A., 1945 (now being revised), and Gaylord W. Anderson and Margaret Arnstein: *Communicable Disease Control* (2nd ed.), New York, Macmillan, 1948.

MIND, BEHAVIOR AND HEALTH

If the health educator's job were only to inform people, an adequate performance could be achieved with the books mentioned above. But health education is more than just a matter of informing individuals or groups of people; it must be concerned equally if not more with motivating them. Until recently, health education was characterized alone by an eager didactic impulse to make the results of medical knowledge available to the public, to enlighten the people in matters of health and hygiene. Basic to these efforts was an explicit or implicit acceptance of the supreme social value of intelligence, and a realization that social intelligence could be made effective only if there was an informed public opinion. This standpoint derived from the enlightenment of the 18th century and was based upon an associationist, rationalistic psychology.

But even the 18th century was aware that man did not act by reason alone. Voltaire, for instance, characterized as insane the "idea of becoming wholly reasonable." With the rise of dynamic psychologies and the development of the social sciences in our century, the basis of health education could not remain unaffected. An increasing realization that the perceptions, in terms of which people act, reach their consciousness through the dark waters of their emotions and beliefs, will gradually lead to a reorientation of health education.

In approaching the question: What makes people act as they do? the health educator will do well to have on the bookshelf the writings of Sigmund Freud and Adolf Meyer. Selections from the works of these *Altmeister* of dynamic psychology are now readily accessible in *The Basic Writings of Sigmund Freud,* New York, Modern Library, 1938, and *The Commonsense Psychiatry of Dr. Adolf Meyer,* New York, McGraw-Hill, 1948. With these may be read Arnold Gesell: *The Embryology of Behavior,* New York, Harper, 1945, where an effort is made to deal from the viewpoint of embryology with that most complex of all action systems, namely, human behavior.

Recently the achievements of the social sciences during the war have begun to appear in book form. The first of these reports, a landmark in the history of applied social science, is Alexander H. Leighton's *The Governing of Men,* Princeton, Princeton University Press, 1945. Dr. Leighton, a psychiatrist who had studied Navajo and Eskimo societies, was sent in June, 1942, to the Relocation Camp for evacuated Japanese at Poston, Ariz., by the Office of Indian Affairs, which ran it. Two-thirds of Leighton's book chronicles the first year of life at Poston from the point of view of the applied social scientist. The remaining third of the book generalizes the experiences at Poston. In numbered principles and recommendations the author gives what seem to be the most effective ways of dealing with groups of people living under stress. It seems almost obvious that these recommendations should be applicable to all situations requiring the organization of people. While human relations do not lend themselves

to precise blueprinting, this is *must* reading for health educators.

Another focus of interest in the social sciences which has particular relevance for health education is the *small group.* The most important studies of group structure with many implications for the future development of education have been conducted by the late Kurt Lewin and his associates. These studies show uncommon sensitivity in the interconnections between individual behavior and group structure. A collection of papers issued under the title *Resolving Social Conflicts,* New York, Harper, 1948, will serve the health educator as a convenient sourcebook in Lewin's social psychology. While at the Massachusetts Institute of Technology, Lewin established the Research Center for Group Dynamics, which he conceived as a laboratory to develop a combination of research and application in action. For current ongoing investigation in this field, see the journal *Human Relations* (published by the Research Center for Group Dynamics, Cambridge, Mass.). A pamphlet entitled *Two Lessons of Group Dynamics,* published by Educator's Washington Dispatch, Washington, D. C., indicates an immediate practical application of results from this field of investigation. It is likewise worth noting that a series of bulletins on group dynamics is being published by the N.E.A. Department of Adult Education, 1201 Sixteenth Street, Washington 6, D. C.

Important developments have occurred in the analysis of communication and the formation of public opinion. As communication analysis moves in the only direction which will interest the health educator, namely, the study of the effects of communication on behavior, it will be necessary for the health educator to be aware of the pertinent literature in this field. Promising results have already been obtained in Robert K. Merton's *Mass Persuasion,* New York, Harper, 1946. The most valuable synthesis of the various methods of public opinion analysis has been produced by Paul Lazarsfeld, B. Berelson, and H. Gaudet in *The People's Choice,* New York, Duell, Sloan & Pearce, 1946. Two important phenomena uncovered by this study were the effectiveness of the small group as over against mass media, and the significant role of the opinion leader, namely, the person who influences opinion in direct personal contacts. Another important study dealing with the nature and significance of the informal group in factories and the emergence of "natural leaders" is F. L. Roethlisberger and W. L. Dickson: *Management and the Worker,* Cambridge, Mass., Harvard University Press, 1938.

Two collaborative volumes surveying the problems of communication will be of interest to health educators. These are Lyman Bryson (editor): *The Communication of Ideas,* New York, Harper, 1948, and Wilbur Schramm (editor): *Communications in Modern Society,* Urbana, Ill., University of Illinois Press, 1948.

For a basic concept of communication the health educator would do well to read and study the work of a pioneer philosopher of communication, George H. Mead: *Mind, Self, Society,* Chicago, University of Chicago Press, 1934. This is not easy reading, but the result is worth the effort. In this connection the philosophically interested educator may wish also to read Sir Charles Sherrington's *Man on His Nature,* New York, Macmillan, 1941.

The relevance of the social group for education is illuminated by Allison Davis's *Social Class Influences Upon Learning,* Cambridge, Mass., Harvard University Press, 1948.

Finally, as a guide and reference work to the field of communication, the health educator will want to have on the bookshelf H. D. Lasswell, R. D. Casey, and

B. L. Smith: *Propaganda and Promotional Activities. An Annotated Bibliography,* Minneapolis, University of Minnesota Press, 1935, and B. L. Smith, H. D. Lasswell, and R. D. Casey: *Propaganda, Communication and Public Opinion. A Comprehensive Reference Guide,* Princeton, Princeton University Press, 1946.

The effects on health education of advances in the social sciences are still meager, but there are indications that the impact is already beginning to make itself felt. Here too the needs of the war period exerted a facilitative influence. Food had to be rationed and so the problem of food habits was tackled. *The Problem of Changing Food Habits. Report of the Committee on Food Habits, 1941–1943* (Bull. Nat. Res. Council No. 108), Washington, D. C., National Research Council, 1943, presents some of the work that was done in this field and is required reading for every health educator. A second significant publication is *Motivation in Health Education. The 1947 Health Education Conference of the New York Academy of Medicine,* New York, Columbia University Press, 1948. From the four papers contained in this small book it is clear that we will not have an effective theory of health education until it is recognized that for the most part people use intelligence to attain ends dictated by feeling and conviction and not as a matter of rational motivation, and that more often than not this is the situation with respect to health.

THE TOOLS OF HEALTH EDUCATION

In the preceding section we have dealt with ideas and concepts, or more generally with theory relevant to health education. But theory without practice is of little earthly use, and so we shall now consider the tools of the health educator.

First come such works of reference as an unabridged Webster's *Dictionary,* or some other, such as the new *American College Dictionary;* Dorland's *American Illustrated Medical Dictionary* (21st ed.), Philadelphia, Saunders, 1947; *The World Almanac* for 1949; and an encyclopedia. If there is room and money for the *Encyclopedia Brittanica,* well and good. If not, the one-volume *Columbia Encyclopedia,* New York, Columbia University Press, will be found exceedingly useful.

For the literary side of the health educator's endeavors *A Manual of Style,* Chicago, University of Chicago Press, 1937 (8th impression, 1945), is essential. It helps in the preparation of printed or written materials and is a standard working tool in proofreading and editing. In addition, for those who apply something more than just the tape measure of utility, I should like to recommend a volume that has been for me both profitable and amusing, namely, Robert Graves and Alan Hodge: *The Reader Over Your Shoulder. A Handbook for Writers of English Prose,* New York, Macmillan, 1944. Two items that may be of interest in this connection are Sir Clifford Allbutt: *Notes on the Composition of Scientific Papers,* London, Macmillan, 1925, and G. H. F. Nuttall: *Notes on the Preparation of Papers for Publication in The Journal of Hygiene and Parasitology,* Cambridge, at the University Press, 1940. Particularly for biological and medical terms the health educator will find it helpful to have E. C. Jaeger: *A Source-Book of Biological Names and Terms,* Springfield, Ill., Thomas, 1944.

The proper handling of publicity and public relations requires guidance. Jack Ramsberger: *How To Make Publicity Work,* New York, Reynal & Hitchcock, 1948, is a good introduction to publicity methods. Although written specifically for nurses, the *A.N.A. Public Relations Workshop,* New York, American Nurses Association, 1948, a

practical manual of public relations techniques, will be found useful for a wider audience. Brief and breezy, *About Public Relations, Publicity* is an excellent orientation manual on these subjects. Prepared by the Public Information Unit of the New York City Health Department, it will be of interest to all health educators. A good discussion of policies and techniques involved in presenting news to the public is offered in *Publicity in New York City,* a special issue of *Better Times,* a social work weekly. (This is available from the New York City Welfare Council, 44 East 23rd Street, New York 10.)

For the preparation of annual reports, a copy of B. K. Tolleris: *Annual Reports—How To Plan and Write Them,* New York, National Publicity Council (130 East 22nd St., New York 10), 1946, will guide the tyro. With this, it will be useful to have on hand Rudolph Flesch: *The Art of Plain Talk,* New York, Harper, 1946.

Intelligent use of radio and film is important to the success of health education programs. A good introduction to radio is offered by Erik Barnouw: *Handbook of Radio Writing,* Boston, Heath, 1948. The value of films makes it necessary for the health educator to know about the sources from which health films can be obtained. The Educational Film Library Association, 1600 Broadway, New York 19, publishes a *Health Film Catalog* which lists and analyzes about 250 films, indicating their sources. Then there is the Library of Congress *Guide to United States Government Motion Pictures,* 1947, which also contains health materials. The National Film Board of Canada publishes a *Public Health Film Survey* which includes about 130 health films and another survey for approximately 300 medical films. These surveys may be obtained from the National Film Society, 172 Willington Street, Ottawa, Canada. In addition, various other organizations have larger or smaller catalogs. For example, the Health and Welfare Division of the Metropolitan Life Insurance Company, 1 Madison Avenue, New York, has brought out a *Catalog of Films on Health and Safety,* listing films and film strips which this organization produces and distributes. See also the Bibliography of Public Health Motion Pictures and Film Strips. *A.J.P.H.,* February, 1949, page 236.

The television field is still wide open, but the health educator ought to have at least one volume on the desk, and this might well be Hayland Bettinger: *Television Techniques.* Edgar Dale: *Audio-Visual Methods in Teaching,* is also recommended for its field.

Art techniques will, from time to time, be of interest to the health educator. One of the best bibliographies to this field is contained in *Parergon Supplement,* Evansville, Ind., Mead Johnson & Co., 1946. Should a single reference volume be desired, Ralph Mayer: *The Artists' Handbook of Materials and Techniques,* New York, Viking Press, 1943, may be recommended.

A volume by a master typographer which will be found very useful is W. A. Dwiggins: *Layout in Advertising,* New York, Harper, 1928. A new edition has been in preparation and will shortly be available.

For general reference, the bookshelf should have the *How-To-Do-It Series on Publicity and Public Relations Techniques,* National Publicity Council, 130 East 22nd Street, New York 10. Equally useful is the *Publicity Directory,* 1947, Special Issue of *Channels,* National Publicity Council for Health and Welfare Services, New York.

Finally, as an example of how techniques are put to work, one should have H. C. Baker and M. S. Routzahn: *How To Interpret Social Welfare,* New York, Russell Sage Foundation, 1947.

BOOKS FOR SPECIAL FIELDS

The impossibility of becoming omniscient makes it imperative that the health educator have on the bookshelf a number of books to which one can turn for rapid orientation. These should include at least the following: H. D. Pope and A. S. Chadwick: *The Modern Attack on Tuberculosis* (rev. ed.), New York, Commonwealth Fund, 1946; R. A. Vonderlehr and J. R. Heller, Jr.: *The Control of Venereal Disease,* New York, Reynal and Hitchcock, 1946; W. M. Gafafer (editor): *Manual of Industrial Hygiene,* Philadelphia, Saunders, 1943; and *Manual of Public Health Nursing* (3rd ed.), New York, Macmillan, 1939. As a guide to child care, Benjamin Spock: *Pocket Book of Baby and Child Care,* New York, Pocket Books, 1946, is cheap and has a down-to-earth viewpoint. One of the most practical guides for the first two years of life is *New York City's Baby Book. A Handbook for Parents,* New York, Department of Health, 1947. The three publications of the Children's Bureau, *Infant Care, Your Child from One to Six,* and *Your Child from Six to Twelve,* are similarly comprehensive and authoritative and ought to be readily available. Should the health educator need information on public health law, the book to consult, of course, is J. A. Tobey: *Public Health Law* (3rd ed.), New York, Commonwealth Fund, 1947. In the area of environmental sanitation, two volumes will give aid and comfort in time of need—H. S. Adams: *Milk and Food Sanitation Practice,* New York, Commonwealth Fund, 1947, and V. M. Ehlers and E. W. Steel: *Municipal and Rural Sanitation,* New York, McGraw-Hill, 1943. When vital statistics are required, two items will fill the bill in most respects. For the first four decades of the century the volume by F. E. Linder and R. D. Grove: *Vital Statistics Rates in the United States, 1900–1940,* Washington, D. C., Government Printing Office, 1943, and the *Physicians' Handbook on Birth and Death Registration* (9th ed.), Washington, D. C., Census Bureau, 1943, are most useful. Among the newer trends in the medical and public health fields, the background and objectives of social medicine are well presented in the collaborative volume *Social Medicine: Its Derivations and Objectives,* New York, Commonwealth Fund, 1949. In the area of rural health an excellent contribution has appeared, namely, F. D. Mott and M. I. Roemer: *Rural Health and Medical Care,* New York, McGraw-Hill, 1948; and for information in the dental field the health educator can now turn to Wisan and Pelton: *Dentistry in Public Health,* Philadelphia, Saunders, 1949. There is already an enormous literature on medical care so that no single volume alone suffices. Nevertheless the health educator as a citizen and by the very nature of his field of activity should be acquainted with the basic problems. A very useful statistical reference work is H. Hollingsworth, M. C. Klem, and A. M. Baney: *Medical Care and Costs in Relation to Family Income, A Statistical Source Book,* Federal Security Agency, Social Security Administration, Bureau Memorandum No. 51 (2nd ed.), 1947. A good recent effort to present the development and present state of public medical services is Franz Goldman: *Public Medical Care—Principles and Problems,* New York, Columbia University Press, 1945. See also his *Voluntary Medical Care Insurance in the United States,* New York, Columbia University Press, 1948. The New York Academy of Medicine report, *Medicine in the Changing Order,* New York, Commonwealth Fund, 1947, is another volume worth reading. The best statement of the fundamental issues involved in the medical care discussion is, in my opinion, still that of Walton H. Hamilton in *Medical Care for the American People.*

The Final Report of the Committee on the Costs of Medical Care, Chicago, University of Chicago Press, 1932. C. T. Brues: *Insects and Human Welfare* (rev. ed.), Cambridge, Mass., Harvard University Press, 1947, gives a satisfactory basic account of the public health aspects of insect-borne diseases. Unfortunately a day has only twenty-four hours, so that books which survey the highlights of a particular field and thus save time deserve a debt of gratitude, particularly when they are well done. A volume of this kind, which has been appearing since 1943, is the *Health Instruction Yearbook* compiled by Oliver E. Byrd, Stanford, Calif., Stanford University Press. The most recent issue is that for 1948. A similarly useful British volume is Baron Horder (editor): *Health and Social Welfare, 1947,* London, Todd Publishing Company, Ltd.

PERIODICALS ON THE BOOKSHELF

Current periodicals are an absolute necessity in order to keep abreast of any field of public health. For the health educator the *American Journal of Public Health, Hygeia, Science News Letter, Channels, Public Health Economics,* and *Public Opinion Quarterly* represent a minimum selection. Special needs may require other periodicals, perhaps *Population Index, Public Health Reports, Public Health Nursing, Bulletin of the National Tuberculosis Association, Cancer News* of the American Cancer Society, the *Industrial Hygiene Newsletter* of the U. S. Public Health Service, as well as its *Venereal Disease Information,* or *The Child* published by the Children's Bureau. The publications of various municipal and state health departments will be of interest at some time or other. *The Statistical Bulletin* issued by the Metropolitan Life Insurance Company is a useful source of information, as are also the *Tuberculosis Abstracts* of the National Tuberculosis Association. House organs and other publications of pharmaceutical houses will also be found to have items of health education interest. While not itself a periodical, the 35 year *Index of the American Journal of Public Health, 1911–1945,* Garrard Press, 1947, is a necessity. Finally, the health educator should be aware of *Tone,* the newsletter of the Cleveland Health Museum.

HISTORY, HUMANISM AND PUBLIC HEALTH

Public health is a field of human activity which owes its existence to the social and biological nature of man. A gregarious instinct and need for protection undoubtedly encouraged men to join together and live in communities. But man is also a biological organism and as such subject to biological needs and processes that are attributes of life. With the satisfaction of these needs (nutrition, reproduction, shelter) and the manifestations of these processes (health and disease) the community has had to reckon throughout known history. These efforts of the past have all entered, in some fashion or other, into the broad stream of modern public health. For the health educator to understand how the present has evolved from the past, and to be aware of the position of the public health worker in our complex society, a knowledge of history is essential. As the late Justice Holmes once said, "Continuity with the past is a necessity, not a duty."

The health educator should have at least one general history of medicine on the bookshelf. Several one-volume histories are available, but my personal preference is for Arturo Castiglioni: *A History of Medicine* (2nd ed.), New York, Alfred A. Knopf, 1947. If available, Fielding H. Garrison: *An Introduction to the History of Medicine* (4th ed.), Philadelphia, Saunders, 1929, should, of course, be consulted. However, Garrison is out of print, and the

prices of second-hand bookdealers are excessively high, so don't buy it unless you are a collector or especially interested in medical history. Furthermore, the health educator ought to be aware that no history is completely free of error; for specific points it is well to check several historians or to return to the original source, if it is accessible.

Either of these volumes should be flanked by Henry E. Sigerist: *Civilization and Disease,* Ithaca, N. Y., Cornell University Press, 1943, a book which offers a fascinating panoramic view by a master historian, and R. H. Shryock: *The Development of Modern Medicine,* New York, Knopf, 1947, which undertakes to portray the rise of modern medicine and public health against the background of intellectual and social history in general. A useful supplement to Shryock, presented with the accuracy and clarity characteristic of the author is Iago Galdston: *Progress in Medicine,* New York, Knopf, 1940.

Turning more specifically to the history of public health, one must be honest and say that while several books can be suggested there is no single volume offering a competent historical account of public health. There are of course the two volumes by Sir Arthur Newsholme: *Evolution of Preventive Medicine,* Baltimore, Williams & Wilkins, 1927, and *The Story of Modern Preventive Medicine,* Baltimore, Williams & Wilkins, 1929, but with all due respect to Newsholme as a health officer, teacher, and thinker, as a historian his approach is primitive. History ought to be a recreation of the changes exhibited in time and space of certain forms of human behavior, with some indication of the web of interconnection which binds together different facts and various lines of development. Nevertheless, as sources of factual data, the Newsholme volumes have a limited usefulness.

For the reader who wishes a history of sanitation that can be read with *pleasure,* I unreservedly recommend Reginald Reynolds: *Cleanliness and Godliness,* New York, Doubleday, 1946. Reynolds offers complete coverage from the water closets of Crete and Mohenjo-Daro to the latest developments of modern sanitary engineering, all in vivid, urbane prose.

The historical side of health education, with particular reference to health museums, is presented by Bruno Gebhard: "From Medicine Show to Health Museum, *Ciba Symposia,* March, 1947. Parenthetically, the health educator will find much of interest in the various issues of *Ciba Symposia* (published by Ciba Pharmaceutical Products, Summit, N. J.), now in its tenth year.

Public health administration and epidemiology have been well served by C.-E. A. Winslow whose *Evolution and Significance of the Modern Public Health Campaign,* New Haven, Conn., Yale University Press, 1923, and *Conquest of Epidemic Disease,* Princeton, Princeton University Press, 1943, deserve a place on the bookshelf where they may easily be reached.

The history of public health in America is still to be written, but meanwhile M. P. Ravenel (editor): *A Half Century of Public Health,* New York, American Public Health Association, 1921, serves to orient one.

The history of occupational hygiene has been a neglected field, but within recent years historical accounts of this field have begun to appear. Ludwig Teleky: *History of Factory and Mine Hygiene,* New York, Columbia University Press, 1948, provides an adequate introduction. For the history of an occupational group whose lineage may be traced back in almost unbroken continuity to neolithic times, the health educator should see George Rosen: *The History of Miners' Diseases,* New York, Henry Schuman, 1943.

In 1939, Morris Cohen, the philosopher, noted in his diary: "How marvel-

ous it is to pick up an old book and feel that you are communicating with a man who has long passed away, that you are getting at his mind, his feelings, and way of expressing himself! " This sense of continuity with the past requires one or several classics of public health on the bookshelf. Most easily available, of course, are those recently reprinted. Among these are John Graunt: *Natural and Political Observations made upon the Bills of Mortality,* Baltimore, Johns Hopkins Press, 1939; Snow *On Cholera,* New York, Commonwealth Fund, 1936; William Budd: *Typhoid Fever,* New York, A.P.H.A., 1931; and the *Shattuck Report,* Cambridge, Mass., Harvard University Press, 1948. *Papers of Charles V. Chapin, M.D.,* New York, Commonwealth Fund, 1934, may be classed in the same group.

Reference to John Graunt in the preceding paragraph brings to mind Major Greenwood with whose writings every public health worker should be acquainted. In this connection his *Medical Statistics from Graunt to Farr,* Cambridge, at the University Press, 1948, and *Epidemics and Crowd Diseases,* New York, Macmillan, 1935, are recommended.

Many of the achievements of modern public health are brought home to us most vividly when we read the biography or autobiography of the person who made the contribution. A section of the health educator's bookshelf should therefore be reserved for biography. As an introductory volume comprising selections from autobiographies, the book prepared by the present writer in collaboration with B. Caspari-Rosen: *400 Years of a Doctor's Life,* New York, Henry Schuman, 1947, may be suggested. Outstanding public health biographies are C.-E. A. Winslow: *The Life of Hermann M. Biggs,* Philadelphia, Lea and Febiger, 1929; S. Josephine Baker: *Fighting for Life,* New York, Macmillan, 1939; Hans Zinsser: *As I Remember Him,* Boston, Little, Brown, 1940; Alice Hamilton: *Exploring the Dangerous Trades,* Boston, Little, Brown, 1943; Ronald Ross: *Memoirs,* London, John Murray, 1923; and Sir Arthur Newsholme: *Fifty Years in Public Health;* London, George Allen and Unwin, 1935. The interested reader will find others. For the autobiography of one of the fathers of public health see the " Biography of Dr. Johann Peter Frank—written by himself, *J. Hist. Med.* 3:11–46, 279–314, 1948.

Many are the rivulets that feed the stream of public health—history, science, literature, and the humanities—but unfortunately neither time nor space will permit us to trace the contribution of each to the literature of the health worker. In conclusion, I wish only to refer the health educator to certain modern books that have had a seminal influence on our views of human behavior and culture. Among these I would include Ruth Benedict: *Patterns of Culture,* Boston, Houghton Mifflin, 1934 (there is also a cheap pocket edition); Lewis Mumford: *Technics and Civilization,* New York, Harcourt, Brace and Company, 1934; and *The Culture of Cities,* New York, Harcourt, Brace, 1938; Patrick Geddes: *Cities in Evolution,* London, 1915; Alfred N. Whitehead: *Science and the Modern World,* New York, Macmillan, 1925; and John Dewey: *Human Nature and Conduct,* New York, Henry Holt, 1922.

Last of all, when the day's work is done and one is ready for relaxed reflection, there is no better companion than *The Practical Cogitator,* an anthology of world literature ranging from the Old Testament to Gertrude Stein, selected and edited by C. P. Curtis, Jr., and Ferris Greenslet, Boston, Houghton Mifflin, 1945. To read this book is a liberal education, for the editors subscribe to that basic tenet of humanism, which should be the motto for the health educator—Nothing human is foreign to me.

Some Public Health Problems in Nuclear Fission Operations*

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THE development and expansion of any new industry is and properly should be a matter of prime interest and concern to public health officials at all levels of government and across the entire spectrum of public health specialties. When this new industry holds promise of such profound importance to the national defense, economic future, and public health and welfare as does the atomic energy industry, it is clearly obvious that its problems, in so far as they may affect the public health, should be placed squarely before responsible and qualified officials in that profession for their information and for whatever assistance they may be able to give in meeting these situations.

The purpose of this paper is to discuss from the point of view of the public health engineer and the industrial hygienist certain problems of environmental and industrial sanitation which exist in this new industry; to tell what is being done to resolve them, and to indicate what we see ahead in atomic energy development which properly concerns these public health specialists and presents them with a challenge, as well as an opportunity to serve.

In discussing this new industry with professional public health workers, it is important to record at the outset that, in spite of all the unique features peculiar to production and research in nuclear fission operations, a rational approach to a study and solution of the public health problems presented still rests on well established principles in sanitary engineering and industrial hygiene. In this respect, therefore, the competent and experienced public health worker has much to offer in helping to guide this new industry. He need not assume that his interest, concern, and responsibility in its problems should await the day when the "mystery of the atom" is common knowledge or when he is invited to participate in resolving its environmental problems. On the other hand, as his experience with situations involving nuclear fission operations broadens, he will find he is dealing with a science which has a profound impact on his profession but concerning which his customary tools of measurement and appraisal are of little value.

The administrative health officer will recognize at once that he is dealing with an industry where young men predominate. He will see scientists using instruments and equipment which seem to challenge the imagination as to refinement in assembly, speed and accuracy of action. He will note that they control production units comparable in size with some of the facilities used at heavy industrial plants.

The epidemiologist will find that the

* Read before a joint Session of the Engineering, Public Health Nursing, and Industrial Hygiene Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

amount and period of radiation, instead of type and virulence of bacterial infections, are subjects of special significance and interest; the medical officer controlling the spread of communicable diseases will find his counterpart—the health physicist—insisting on proper shielding of personnel against radiation and decontamination of over-exposed areas; the bacteriologist will find ionization chambers and Geiger counters being used in place of culture media and incubators; the industrial hygienist will find a keen interest in determination of particle sizes in dust, primarily with respect to its radioactivity rather than with its chemical toxicity; the sanitary engineer will be intrigued by the number and size of the processing units which call for water supply, heat exchange, drainage, air conditioning and ventilation equipment; and he will want to know what becomes of the plant effluents and what, if any, contamination reaches the ground, the streams, and the atmosphere.

NATURE OF NUCLEAR FISSION OPERATIONS

To get back to the public health problems of the industry and an appraisal of them, perhaps a logical first step toward this objective would be to describe briefly nuclear fission operations as currently practised, since most people, even those in the technical professions, are not familiar with them, and relatively few have been able to visit the plants. In spite of its unique characteristics, the operations of this new industry follow a general pattern of other industries in many of its facilities and operating methods. As a consequence there is a definite parallelism in the problems it presents in waste disposal and environmental sanitation.

a. *Production*—Nuclear fission operations start as do other industrial operations with raw materials which must be refined. The principal one is uranium ore which must be crushed, sieved, and conditioned by a variety of processes before it is ready for exposure to neutron bombardment in a pile or reactor where new substances and energy resulting from nuclear fission are produced. In this preliminary processing, the usual problems exist in protecting workers from dust and fumes encountered in metallurgical and chemical industries. However, in this new industry exposure is more serious than in most industries because the natural ore is radioactive, although at relatively low levels. Some elements which must go into the structure of a pile call for various degrees of refinement and metallurgical operations, which involve hazards of dust and fumes.

The highly radioactive materials are produced after neutron bombardment of the prepared uranium in a "pile" or reactor. Here, as a result of nuclear fission, new products are created which are hazardous to handle because they emit particles of high energy which are damaging to living tissues. Operators must be shielded from these radiations, and this requires special design using abnormally thick lead and concrete walls.

The heat resulting from nuclear fission is tremendous and must of necessity be controlled, or considerable disintegration and possible destruction of the reactor structure itself would take place. In a reactor, this heat is dissipated by cooling, using air and water. These coolants, which are used in very large quantities, become radioactive. When they are disposed of they carry with them some radioactive waste products which are potentially hazardous and must therefore be subjected to special treatment.

After removal of the highly radioactive materials from a large production reactor, they must then be treated by various chemical and mechanical separations processes, common to many industries, to permit the particular ele-

ment which is to be produced—usually plutonium—to be obtained. Fission products which are also produced are recovered or stored depending on need for them.

A property of all radioactive substances is progressive decay through emission of energy. They may emit radioactive particles such as alphas, betas, and gamma radiations. Some idea of the rate of decay may be obtained from the fact that 1 gram of radium—equivalent to 1 curie—gives off 37 billion disintegrations per second.

The so-called half-life of a radioactive substance is the length of time required for one-half of its radioactive energy to decay. The half-life of radioactive elements may vary from a few seconds to a million years. Therefore, by a process of holding certain short half-life radioactive substances, the hazard of handling or exposure to them can be reduced. Provided its limitations are fully understood radiation decay through holding has preventive value. Its application might be compared to the health officers' use of quarantine for the period of incubation of a disease as a preventive measure.

As in other industrial chemical processes, there are wastes to be taken care of; and they too are highly radioactive. Those wastes which contain material of sufficient value for recovery are stored while those which, at the moment, have slight economic value are disposed of. Since all are radioactive and some highly toxic, the techniques of disposal must be carefully developed and constantly supervised.

b. *Research*—As contrasted with production plants in the atomic energy industry, there are many research laboratories. Some are small-scale units or production operated for development purposes. Others are for basic research and may handle only radioactive materials or isotopes produced at other plants and transported to these research centers. Since these materials are highly radioactive, great care must be taken in their handling and transportation, use and disposal; and the alert public health official has a responsibility to be sure that he is familiar with these operations and any potentialities which may exist by reason of them for exposure of the public or public facilities within the area of his jurisdiction.

c. *Radioisotopes*—As you may know the Atomic Energy Commission produces and sells radioactive isotopes of various kinds for use and research in medicine, biology, agriculture, and industry. In its *Fourth Semi-annual Report to the Congress,* the Commission lists 3,136 shipments of radioactive isotopes since July 1, 1946, distributed semiannually as follows:

DISTRIBUTION OF RADIOACTIVE ISOTOPES

	Number of Shipments
July 1 to Dec. 21, 1946	246
Jan. 1 to June 30, 1947	699
July 1 to Dec. 31, 1947	953
Jan. 1 to June 30, 1948	1,238
Total to June 30, 1948	3,136

From Oak Ridge, isotopes have been sent to users in 33 states, the District of Columbia, and Hawaii. Recipients were 236 institutions. By the end of June, 1948, 19 foreign nations had qualified to receive radioisotopes and to 15 of them a total of 159 shipments had been made.

Two isotopes — Phosphorus ^{32} and Iodine ^{131}—represent 2,024, or about 64.5 per cent of these shipments. Carbon ^{14} and Sodium ^{24} represent 367 shipments as an additional 10.5 per cent. Thus these four radioactive isotopes account for 75 per cent of the shipments made to date.

Classified by broad fields of professional application these isotope shipments were used as in Table 1.

The half-life of some of the more common isotopes currently used for research in medical, public health, industrial, and biological laboratories is listed (Table 2):

TABLE 1

Use in	Number of Shipments of Radioactive Isotopes July 1, 1946, to June 30, 1948
Medical Therapy	1,291
Animal Physiology	992
Chemistry	262
Physics	257
Plant Physiology	156
Industrial Research	90
Bacteriology	64
Metallurgy	20
Other	4
Total	3,136

TABLE 2

Element	Symbol	Mass No. of Isotope	Half Life
Carbon	C	14	5,100 yrs.
Zinc	Zn	65	280 days
Calcium	Ca	45	180 "
Sulphur	S	35	87.1 "
Iron	Fe	59	44 "
Phosphorus	P	32	14.3 "
Iodine	I	131	8.0 "
Copper	Cu	64	12.8 hrs.
Potassium	K	42	12.4 "

CONTROL MEASURES NECESSARY

The usual safety and public health control measures carried out by well managed industries and research institutions are not adequate for complete protection of persons and property in the production and use of nuclear fission materials. This is because of the new hazards introduced by radioactivity. It is a reason why those of us who have been accustomed to considering industrial and environmental problems in terms of chemical, bacterial, biological, and general physical properties must broaden the scope of our appraisal to include radioactivity. This calls for a better understanding of the principles of nuclear physics and familiarity with its technical terms, units, and standards, and also an ability to interpret them and to blend their values with others we are most accustomed to work with.

At plants operated under the Commission's control, measures for protection of working personnel against overexposure to radioactivity usually are carried out by skilled technicians called health physicists. They monitor working areas and see to it that any contamination which occurs is removed and properly disposed of. While their earlier attentions were directed principally to protection against radioactive contamination in-plant and on-site, more recently these specialists have given much consideration to the off-site problems involved when waste from nuclear fission operations for one reason or another are released to the atmosphere, into the ground, or on surface areas.

SANITARY ENGINEERING RESPONSIBILITIES

It is this environmental phase of the problem which is of special interest to the sanitary engineer and the industrial hygienist. Therefore, it is the one which we shall cover most fully in this paper. It is an area where the opportunity and challenge is the strongest and where, by reason of their education and training, the sanitary engineer and the industrial hygienist can be of special service. The sanitary engineer, the industrial hygienist, and the health physicist are indeed key men in the progress of this new industry. It has become almost axiomatic that an industry like a community can have a healthy growth only so long as it can adequately dispose of its own waste products. Because of nuclear fission we are actually on the threshold of a new era in industrial development; therefore, every public health worker should acquaint himself with the problems which this new industry will present, especially in disposal of its wastes.

The need of educating and training sanitary engineers and other public health specialists in nuclear physics and its applications in the expanding field of atomic energy is recognized by the Commission. A small group of sanitary engineers and chemists in federal agencies, other than the Commission, are being given training at Oak Ridge and Los Alamos; and it is planned to expand this activity to water and sewage

plant operators and public health officials. The need of extensive education and training of sanitary engineers and industrial hygienists in all categories of the profession and in private as well as public service in the elements and problems of this new industry is obvious. Programs designed to meet this need are under serious consideration; and, in the near future, a seminar will be held in Washington at which a selected group of key men, representing water and sewage works operators and state sanitary engineers, will be informed of current problems in the industry and will be requested to suggest effective ways of attack.

PROBLEMS OF WATER SUPPLY

Recognizing that the disposal of radioactive or toxic wastes from its plants or research operations in increasing quantities could create serious problems, the Atomic Energy Commission and its various area contractors have given and are continuing to give much consideration to reducing such contamination to an absolute minimum. But a water-cooled reactor requires a large volume of water for heat-exchange purpose, and this water must be disposed of. The type and degree of radioactivity in such water can be determined and controlled. Knowing the radioactive characteristics of the water leaving the reactor, the period of time it will continue to emit nuclear energy can be determined. Therefore, having knowledge of the amount of this energy in particles or radiations which the human system can tolerate with safety, it is possible to determine the extent of hazard involved in the disposal of such wastes.

As all radioactive substances undergo decay until they cease to emit energy, knowledge of the length of time required for this decay provides one method of appraising the extent of the problem. Consequently, retention is one method of treatment relied upon for cooling water which must be returned to streams. Unfortunately, some radioactive substances have long half-lives. In such cases, these substances must be removed from water used for cooling reactors unless their quantities are in such small amounts that, with dilution, the hazard of their presence is negligible. The technical control in treatment of water used for cooling nuclear reactors must be of the highest order. A healthy development of this industry would require application of the special skill and experience of the water works designers and specialists in water treatment.

At atomic energy plants, as well as those of other industries, there is always the remote possibility that an accident or a spill will occur with the result that the waste products in abnormal amounts might be released. Great care is taken to avoid such accidents, and provision is made for special treatment and use of standby equipment should they occur. Nevertheless, it should be the concern of every sanitary engineer responsible for water supplies in an area where nuclear fission products are produced or used to appraise and evaluate risks to such supplies under all circumstances. He should work out with operators of such plants a system of routine checks and emergency warnings so that at all times protection against radioactive contamination will be afforded. The Commission will coöperate fully with the U. S. Public Health Service in its research program with the states and industry to resolve any problem of stream pollution which may result from its operations.

The discharge of radioactive waste products into or onto the ground also has potentialities of contaminating water supplies; and, here again, long known principles of disposal of wastes from industrial plants apply. Radioactive waste products with long half-lives could create serious hazards, and their discharge deserves careful study and

effective control. Where such wastes are disposed of to the soil, it is of basic importance that information be obtained as to the rate of flow of the ground water and the dilution possibilities so that at all times the extent and degree of contamination may be known. Fortunately, some radioactive substances are known to attach themselves firmly to soil and do not travel far from the point of disposal in soil. As a result, they undergo decay in a localized area and spend their radioactive energy before they can be transported to more distant sources of water supply. But this favorable relationship should not be accepted as adequate protection under all circumstances. Common prudence dictates that the facts in each case should be obtained where sources of water supply might be involved.

There is evidence that such processes of water purification as coagulation and sedimentation and sand filtration are quite effective in removing some radioactive substances from water. The problems of disposal of the radioactive sludge and controlling the build-up of radioactivity in filter media are deserving of special consideration. These are being studied by the Atomic Energy Commission, and facilities for extending research of this kind are being installed at Oak Ridge and Los Alamos.

Radioactive particles carried into the atmosphere by gaseous effluents from nuclear fission operations could contaminate the air we breathe and, on settling, with or without rainfalls, contaminate the soil and vegetation on which they deposit. Thus watersheds and open reservoirs could become contaminated if the half-life of the radioactive product is long. Here again, the elements of time and dilution, as well as fixation, are factors of safety. But an alert and responsible sanitary engineer should not accept these favorable influences as a substitute for determining the facts.

Still another aspect of radioactivity in water, interesting and significant to sanitary engineers and biologists, is evidence that such energy does not unfavorably affect many plankton growths, and is accumulated within these organisms. Algae and other forms are known to grow prolifically in water which is quite radioactive. The potentialities and significance of this finding are especially interesting and important to all interested in the biology of streams and their subsequent use as sources of industrial and public water supplies.

COMMUNITY WATER SUPPLIES

At Oak Ridge, Hanford, and Los Alamos, the Commission, through its contractors, operates communities, housing and serving about 60,000 persons, including employees and their families and, during period of expansion, construction camps for tens of thousands of temporary employees. The problem of supplying water to these areas has been much more involved than that of providing water for normal communities of the same size. This has been due partly to the fact that new communities had to be built hurriedly in remote areas and under difficult conditions.

At the Richland, Washington, Village, housing employees of the Hanford Works, the per capita consumption of water on hot days is about 1,100 gallons per day, over two-thirds of which is for sprinkling lawns and parkways. Currently, more than half of the water supplied to Los Alamos Village must be pumped on elevation of nearly 2,000 feet.

Private water works consulting engineers were employed to design these facilities, and have successfully resolved the problems involved.

PROBLEM OF WASTE DISPOSAL

Waste from nuclear fission plants as from most industries are liquid, dry, and gaseous. It is the policy of the Commission to develop ways and means of

treating wastes resulting from production and research activities at plants under its jurisdiction so that there will be no hazards to its employees or to others. Toward this end, special working groups of outside consultants are collaborating with staff employees in various areas of operation and at research institutions.

Liquid Wastes—Because of the scarcity of the raw material such as uranium ore and the value and importance of fission products resulting from the separations processing subsequent to bombardment in the reactors, great care is taken not to lose these products. This calls for on-site storage of large quantities of valuable and highly radioactive materials, especially at production plants. Waste products with little value but having radioactive or toxic properties must be disposed of. This poses a problem both of economics and of safety. Cribbing and lagooning, which are common practices in many industries, have been carried out with a fair measure of success, but it is recognized that such practices have potential hazards and limitations.

With the objective of maximum product recovery and minimum of radioactive waste to be disposed of, the Commission is seeking to develop processes which will in effect result in a closed system. One of the unique problems in the nuclear fission industry is that equipment and facilities which come in contact with highly radioactive contamination also become contaminated and, therefore, must be decontaminated or be disposed of. For this reason, use of many of the methods and much of the equipment common to other industries for treatment of industrial waste must be ruled out or modified because of the end problem of ultimate disposal. This need of developing equipment small in size and methods which will minimize human exposure is a complication which must be faced at all times in seeking practical solutions to problems of disposal of wastes in the field of nuclear fission.

The ability of certain natural soils and artificial media and resins to adsorb radioactive liquid wastes is a subject of much interest and research. The possibility of concentration of radioactivity by biological methods and, conversely, the effect of various amounts of radioactivity on biological processes common to sewage treatment are being studied.

There has been some concern on the part of operators of sewage treatment works that the disposal of waste resulting from the use of radioactive isotopes at hospitals and research institutions might have an adverse effect on the sensitive biological processes at these works. Their concern is wholly understandable and, currently, research programs are being initiated designed to obtain basic facts. The rapid increase in the use of radioactive isotopes in institutions and industry poses many other problems which call for answers such as the degree, if any, to which plumbing fixtures in buildings can become radioactive, and to what extent facilities in sewer systems, such as receiving basins, sump and booster pumps, will require monitoring before entered or handled by workmen.

Radioactivity is indeed a type of contamination to which the sanitary engineer and the industrial hygienist of the future will need to give serious consideration and which he must be able to measure and to interpret. Its potential as a contaminant in cases where interconnections between piping systems in buildings or institutions exist is as insidious as it is hazardous.

Dry Wastes—In the various processing stages, especially in metallurgy, dusts and chips of radioactive and, in some cases, toxic materials result. That which can be, is reclaimed. As a rule the remainder, if of a low level of radioactivity, is buried. If of high level, it is stored in a container—well shielded against radioactivity—for subsequent

burial when it is safe to do so in the ground, usually in the same container. Instruments, containers, glassware, and facilities used in handling radioactive materials become contaminated. They are decontaminated where this is possible or practical but ultimately they become radioactive to a degree where they must be condemned for further use. Again, depending on the degree of radioactivity, these activities are disposed of by burial either in shielded containers or direct. Incineration of radioactive materials is not advisable unless adequate facilities are available to remove all activity from the resulting gases, which in itself is not a simple task.

The entire problem of disposal of so-called dry wastes resulting from nuclear fission operations is receiving much attention. The usual salvage operations common to most industries cannot be resorted to and great care is taken to see that contaminated material having value is not released until it is safe to do so; and in the case of long-life radioactivity the facility is destroyed rather than risk possible re-use. As this industry expands, the temptation to reclaim value in contaminated material and equipment could introduce serious public health hazards which must be prevented.

Gaseous Wastes—Certain constituents of the air which are passed through an air-cooled reactor become radioactive. The concentration is low and the half-life short. Therefore, if operation is discontinued when atmospheric conditions are most unfavorable, it is possible by use of special air treatment equipment to meet with a high factor of safety permissible limit established for atmospheric contamination. As in most chemical processing — dry or in solution — very small particles in dust or mists are carried away through the ventilating systems. Those which are radioactive could create a hazard, especially if discharged to the atmosphere in such a way as subsequently to expose human beings or vegetation in amounts which would be injurious. Similarly, exhaust gases from hoods in experimental and research laboratories could, on a lesser scale, create local hazards. The Commission is keenly aware of this stack gas problem and has authorized the installation of most elaborate equipment for filtering and otherwise removing particles and gases from stack and hood effluents. In this field, as in that of liquid waste disposal, work is being pressed, under the direction of a special committee of consultants, looking forward ultimately to the complete removal of all gaseous wastes from Commission plants and the development of new or adaptation of existing gas-treating facilities for highly efficient operation under conditions singularly peculiar to this new industry.

TECHNIQUES AND TOLERANCE LIMITS

In any consideration of contamination, scientists are accustomed to make use of certain standards or permissible levels. Sanitary engineers and industrial hygienists already need some guides as to relative degrees of radioactive contamination, techniques for their measurements, and safe limits for public safety and health. The radiologist and the health physicist have done much to develop such techniques, standards, and equipment, and deserve much credit for their work along these lines. By means of instruments, such as electroscopes, Geiger counters, and ionization chambers, they evaluate the radioactive energy from nuclear particles, such as alpha and beta particles and gamma radiations. They have made much progress in developing instruments of increasing sensitivity and accuracy. More work along these lines has to be done before the public health profession has the tools it needs to work with. The sanitary engineer, the industrial hygienist, and the so-called health physicist have a lot in common and each has

much to give and receive of his knowledge and experience in the development of this branch of science.

Ultimately, permissible levels for radioactivity, developed and being used currently at plants under the Atomic Energy Commission, will have to be subjected to intensive review by outside experts of wide experience in medical and public health and safety research. They naturally will want all standards recommended to be supported by clinical, epidemiological, and biometric evidence before they are generally accepted. The history of the evolution of other technological standards, which have stood the test of time, forewarns us of this eventuality.

The current values were arrived at largely by mathematical calculations as to equivalent energies involved in different substances and relating these to experience in exposure of human beings and animals to radium. It is pertinent to say that as experience is gained, there is a definite trend in the atomic energy field toward stricter standards. The International Congress of Radiobiology in 1934 had set a limit at 200 milliroentgens (mr) per day, while the American Advisory Committee on X-ray and Radium in 1936 had set the figure as 100 mr per day for X and gamma radiation. Limits currently used stem from a tolerance level for total body exposure of 0.1 roentgen equivalent man (rem) in any 24 hour period. In the case of alpha emitters such as plutonium, the objective in establishing limits is to prevent deposition of a total of more than 1.0 microgram in the body during a person's life.

Morgan gives the permissible limits for 24 hour exposure of employees as established in the Oak Ridge National Laboratory and used by a number of other laboratories as follows:

100 (mr) for X and gamma radiation
100 (mrep) for beta radiation
10 (mrep) for alpha radiation
20 (mrep) for fast neutrons
50 (mrep) for thermal neutrons

Morgan makes the significant point that the factors of safety are low and that we should think of these figures as "maximum allowable" rather than "tolerance" amounts of radiation. In the same paper from which these data are taken he presents extended curves and tables summarizing values for tolerances over one year both in air and water. The values are tentative and much too detailed to be reproduced here in full, but a few figures are listed below as examples:

		One Year Tolerance Concentration			
		In Air		In Water	
Element	Assumed Effective Half-Life	microcuries per ml	micrograms per ml	microcuries per ml.	micrograms per. ml.
Ra^{226} pdts	2 wks	2×10^{-10}	2×10^{-10}		..
Ra^{226} pdts	10 yrs.		..	4.4×10^{-6}	4.4×10^{-6}
C^{14} (graphite)	2 mos.	1.2×10^{-7}	2.6×10^{-6}		..
Na^{24}	14.8 hrs	6.3×10^{-7}	7.1×10^{-11}	4.9×10^{-4}	5.5×10^{-11}
Ca^{45}	150 days	2.1×10^{-7}	1.3×10^{-11}	3.6×10^{-3}	2.2×10^{-7}
S^{35}	25 days	3.1×10^{-6}	7.3×10^{-11}	0.41	9.4×10^{-7}

EXAMPLES OF ATTACK

A great deal of excellent work has been carried out and is in progress or planned for resolving the problem of protecting man and his environment against radioactivity. Of special interest to sanitary engineers are the following:

Meteorology—At the Hanford Works, careful experiments have been carried out to determine the most favorable atmospheric conditions under which to carry out operations. Equipment for similar studies has been installed at the Brookhaven National Laboratory where perhaps the most extensive meteorologi-

cal program of all areas will be carried out. The U. S. Weather Bureau will assist in studies of atmospheric problems at most of the larger areas of operation. The selection of size for reactors and other facilities where radioactive materials are produced, stored, or experimented with, calls for very careful appraisal of meteorological factors, and this is in line with the Commission's policy.

Safety Manual—A manual of *Standard Safety Requirements* has been prepared containing information to be used by plant operators in protecting personnel and by designers in preparing plans for new and for revision of existing plants and facilities. Naturally, it has been subject to considerable revision and change as our experience indicates these needs.

Ground Water Protection—The U. S. Geological Survey is coöperating actively in studies and evaluation of surface and subsurface contamination of water supplies where radioactive and toxic wastes may be discharged into or onto the ground. Such problems are currently being given special consideration at the Hanford Works in Washington, Oak Ridge in Tennessee, and at the Brookhaven National Laboratory on Long Island.

Waste Disposal Research—Contracts have been let with several nationally known chemical engineering and development companies for research to improve chemical processing and recovery of valuable products from stored wastes and for reducing the volume and radioactivity of final plant wastes to the smallest amount practical. Coöperative programs with the Public Health Service and the Tennessee Valley Authority have been developed at Oak Ridge, with the Public Health Service at Los Alamos, and with New York University, for study of the effect of radioactivity on biological processes, especially those common in sewage treatment and stream pollution. Included in one or more of these programs will be studies of the effect of radioactive isotopes on various materials used in plumbing and sewers and related facilities. The cumulative effect of radioactivity on algae and various plankton forms and the effectiveness of standard water purification methods in removing radioactive contamination from water will be studied.

A program for studying the Columbia River in the vicinity of the Hanford Works is being developed with the Public Health Service. The construction of McNary Dam—miles downstream from these works—is expected to have a considerable effect on the biology of the river upstream from the dam, and it is desired to determine the effect of this dam and any relation this may have to operations at the Hanford Works.

USE OF SANITARY ENGINEERS

At most of the larger AEC areas, sanitary engineers are employed to assist in the solution of problems in water supply protection, waste disposal, and general environmental sanitation, including related problems in the villages where workers are housed. The Atomic Energy Commission recognizes the need of complete control over the various environmental factors which concern and affect this new and unique industry. It is most anxious that in its current operations and in the expansion which is sure to come, full advantage be taken of the experience of other new industries in order that their earlier difficulties may be avoided. Many of the areas of vulnerability in the atomic energy field which affect environmental sanitation are those in which the sanitary engineer is especially trained to help. As the industry grows, there will be an increasing need of assistance from sanitary engineers, both at atomic energy plants and in areas surrounding them.

When one considers the potentialities of wartime hazards involved in the field

of atomic energy, whether in production for military purposes or the possibility of enemy action, the importance to the national defense of having a large number of public health workers trained in ways and means of coping with hazards of nuclear fission products is evident to a sharp degree.

CONCLUSION

We should like to reëmphasize that (1) the continued expansion of the nuclear fission industry presents many problems and, therefore, an opportunity and a challenge for the trained sanitary engineer; (2) the Atomic Energy Commission is striving actively for a permanent solution of its waste disposal problem; (3) its objective is that this new industry may expand to meet its potentialities without creating objectionable or hazardous conditions at and in the vicinity of its plants as many new industries have done; (4) public health workers should be trained in fundamentals of nuclear physics so that they may have a better understanding of this new industry and its environmental problems; and (5) the need of training sanitary engineers is especially acute considering their responsibilities in a national defense program.

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Public Health Degrees 1947-1948

The January, 1949, issue of the *American Journal of Public Health* carried the Report on Public Health Degrees and Certificates which has been compiled by the Committee on Professional Education annually for the past 15 years. As in previous years, the report on the academic year 1947–1948 contains valuable information on enrollment, the professional backgrounds of the students, the degrees offered and the degrees granted by the various universities. Because of the special concern which the Engineering Section Project has had in training of engineers and sanitarians, the material this year is more complete than previously with respect to the postgraduate degrees in sanitary and public health engineering; in addition the findings of a special study on undergraduate students and degrees in engineering and sanitation are included. Two summary tables only were published in the January *Journal*. A set of 10 additional detailed tabulations in multilith form are available free on request from the office of the Association.

Housing and Health

Sanitary Aspects of the Dwelling *

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DURING the past century "sanitary housing" has been the subject of numerous studies, endless discussion, and some legislation. The political significance of housing has increased with the expansion of public interest in human welfare. After World War I, efforts were made by the National Bureau of Standards and other agencies to influence local governmental units to strengthen building, plumbing, and fire prevention codes. The enactment in 1934 of legislation that established the Federal Housing Administration put the United States Government for the first time squarely in the struggle to improve housing standards and conditions. Three years later the Wagner Act was based on acceptance of the thesis that sanitary housing for all the people is essential to the national welfare, and that continuation of slums is not in the public interest.

Early and recent leaders in the public health movement also have concerned themselves with housing as a factor in community health. Here in Massachusetts a century ago Lemuel Shattuck pleaded for better housing for factory workers.[1] Stephen Smith, 15 years later, presented a strong case against slums and stressed the public health importance of decent housing.[2] In recent years, many of the more thoughtful figures in public health—Winslow, Wolman, Williams, Vaughan, to name a few—have repeatedly emphasized the significance of housing in the community health program.

No purpose would be served here by reviewing what is known about the epidemiological significance of slums and blighted areas. Anderson some years ago pointed out that the standards of housing rest on insecure epidemiological foundations,[3] and others have emphasized this. Nevertheless, whether the exact causal relationship between housing quality and health can be accurately measured, there is ample evidence that good housing is not incompatible with health.

SCOPE OF HOUSING SANITATION

The scope of housing sanitation is broad. Virtually no ordinary problem in environmental sanitation is missing from the realm of the hygiene of housing, and there are problems in housing that are new, if not obscure, in health department practice. To the usual problems may be added those relating to functional design, materials of construction, noise control, illumination, aerobiology, and environmental hazards to mental and emotional health.

Not only is the field broad; it is also complex. It involves legal, economic, and sociological considerations as well as public health. There is a long history of governmental regulation of housing through the use of sanctions to control the structural aspects of new buildings.

* Presented before the Conference of Municipal Public Health Engineers and the Engineering Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

Regulation of occupied multifamily housing has been common for nearly a century. Yet there has been surprisingly little cross-fertilization of the professions and trades concerned with the building, marketing, and control of housing.

Although existing public health activities relate to many of the technical problems in housing, the field itself has been the subject of few specific local health programs. Because housing problems are so complex, it is necessary that there be a frontal attack on them.

Furthermore, it happens that the dwelling is the principal environment of man. Infants average 22–24 hours per day, housewives 20–22, school children 20, and wage earners 15–18 hours daily at home. On the basis of lengths of exposure to hazards that are common to the factory, the classroom, and the dwelling, it is evident that the home is far more significant than either the work place or the school. Gross evidence to support this generalization is to be found in morbidity and mortality data for home accidents, in analyses of the principal causes of industrial absenteeism, and in studies of the spread of epidemic childhood diseases among the younger siblings of school children. We need not and should not wait for more exact data before beginning to act.

STANDARDS

Wide varieties of standards for sanitary housing have been recommended by federal agencies and national associations. In rural and suburban areas especially, Federal Housing Administration standards for dwellings built with guaranteed mortgages have been significant in developing codes of practice where building regulations were formerly either nonexistent or inadequate and poorly enforced. F.H.A. standards deal not only with water supply and sewage disposal but also with heating, fire resistance, structural safety, and minimal room sizes. It is probable that these standards have had greater impact on housing quality the country over than any others.

In the United States the regulation of new housing has traditionally been a function of building officials whose primary concern has been with structural safety, prevention of fire, and protection of life and limb against the hazards of structural collapse or conflagration. In a comparatively narrow sense, building regulations have had sanitary significance in that they contain elemental requirements relating to water supply and sewage disposal, heating, lighting, and ventilation. With rare exceptions, they have been arbitrary, inflexible, and essentially unimaginative, and modern slums have been produced in the face of them.

The control of the quality of occupied housing is usually a responsibility of local health departments. In areas where there are no effective, full-time local health units, there is practically no official action to preserve the quality of good housing, and to improve slum and blighted dwellings. This is understandable. It is not so easy to explain the failure of otherwise effective local health agencies to carry out incisive housing sanitation programs. The leadership of health departments in Memphis, Baltimore, Milwaukee, Los Angeles, St. Louis, and a handful of other communities is noteworthy because it has begun to do something more than investigate housing complaints.

Some of the delay in health department action to improve housing quality may be ascribed to a lack of standards. Health officials have tended to resist activities that are not based on cause and effect relationships. It is obvious from our earlier consideration that such relationships have not been demonstrated in the hygiene of housing, and standards of housing quality have perforce been based on group judgment rather than precise knowledge.

The Committee on the Hygiene of Housing during the past two years has undertaken the preparation of standards for the neighborhood environment, structures and dwelling units, and equipment which is used in the home. Many of the standards recommended by the committee are the product of the considered judgment of its members. The range of training and experience of this group is so wide as to make their group opinions, if not valid, at least cogent.

BASIC DEFICIENCIES

The Committee on the Hygiene of Housing considers that each of the following conditions represents a basic deficiency in the quality of a dwelling:

1. Contaminated water supply
2. Water supply outside unit or structure
3. Toilet shared or outside the structure
4. Bath shared or outside the structure
5. Crowding of more than 1.5 persons per habitable room
6. Crowding of sleeping rooms (persons = 2 x number of sleeping rooms + 2)
7. Less than 40 sq. ft. of sleeping area per person
8. Lack of dual egress
9. Installed heating lacking in three-quarters of rooms
10. Lack of installed electricity
11. Rooms lacking window
12. Serious deterioration

Any dwelling containing 4 or more basic deficiencies is considered to represent an extreme slum.[4]

In surveys recently made in Atlanta, Los Angeles, and Milwaukee, the median numbers of basic deficiencies were found to be 4, 2, and 1, respectively. The high incidence of basic deficiencies in the Atlanta study doubtless stems from the fact that the surveyed area of 2,292 dwelling units represents a known slum. However, there were 4 or more basic deficiencies in 15 per cent of the dwelling units in a representative Los Angeles survey district, and 3 or more basic deficiencies were found in 2,100 of the 9,489 Milwaukee structures appraised.

There are at present no nation-wide data on the incidence of basic deficiencies in either urban or rural housing units. Facts gathered by the Bureau of the Census in its sample survey of April, 1947, however, indicate that there are at least 4.1 million units in need of major repairs (i.e., seriously deteriorated), and 11 million additional units lacking private baths and toilets.[5] Analysis of the available data indicates that there are at least 1.9 million non-farm homes in the United States that have 3 or more basic deficiencies. Nearly 2.5 million dwellings are sheltering more than 1.5 persons per room. Almost one-sixth of all non-farm, non-white units, and 1 in 10 farm houses are thus overcrowded.

Rural housing tends to have the most obvious sanitary defects. In 1940, for instance, there were 3 essentially rural states in each of which more than 100,000 dwellings lacked a source of water supply within 50 ft. of the house, 10 other states each had between 50,000 and 100,000 homes in the same category, and 26 additional states had between 10,000 and 50,000 dwellings with the same deficiency. In North Dakota 29.5 per cent (47,430) of all homes lacked a water supply within 50 ft. of the house. Even urbanized Connecticut had 1,641 such units. Furthermore, sanitary surveys and laboratory sampling programs in several states have shown that more than 75 per cent of existing farm water supplies are unsafe.

In general, more dwellings are provided with sewage disposal facilities than with conveniently accessible water supplies. No state reported more than 100,000 units without toilets or privies, and only North Carolina reported more dwellings lacking sewage disposal facilities than homes without water supplies within 50 ft. The privy building programs that were common between 1934 and 1940 seem to have made an obvious dent housingwise as well as epidemiologically. Unfortunately, surveys sponsored by state health departments since

the end of World War II indicate that more than three-quarters of existing privies are still insanitary.

These specific deficiencies are not limited to rural homes. In the metropolitan areas of New York, Baltimore, Detroit, Chicago, St. Louis, and Los Angeles, the 1940 census revealed 15,709 dwellings lacking water within 50 ft. of the structure. The same communities had 11,795 homes without toilets or privies. In 1945, 12 per cent of all non-farm units in the nation lacked running water. Is this not evidence that there are tangible housing sanitation problems that merit health department action?

THE NEIGHBORHOOD

The dwelling and structure are not the only components of housing that have health significance. Board and Dunsmore have described some of the sanitation problems of urban fringe areas,[6] and the experience of the federal housing agencies demonstrates the health importance of site selection and community planning. Furthermore, the Committee on the Hygiene of Housing has considered the neighborhood as a basic planning unit, and has published standards on the subject.[7]

The significant health principles that should be met in an adequate community environment are:

1. Protection against accident and communicable disease hazards, including provision for maintaining cleanliness
2. Provision of adequate daylight, sunshine, and ventilation with non-polluted air
3. Protection against excessive noise
4. Protection from fatigue and provision of reasonable privacy for the family
5. Provision of opportunities for normal family and community life in esthetically satisfactory surroundings protected against moral hazards

More and more it is recognized that the effect of substandard environment extends beyond direct threats to physiological health, and that it involves also significant detriments to mental and emotional well-being. For the present, at least, measurement of the total health significance of neighborhood deficiencies appears to be impossible. It is to be expected, however, that, like the Mosaic laws, these current beliefs of thoughtful men will some day be validated.

FUTURE PROBLEMS

Events of the past decade have cast a shadow upon the future of urbanization. Great centers of population have become the targets of combatant nations, and civilians in possible future wars will share the horrors which traditionally have been the lot of warriors. A recent release of the National Security Resources Board, in addition to describing some of the factors relating to industrial relocation, contains this statement: "A high concentration of industry or population in a given area constitutes the best target for atomic or other modern weapons."[8]

In planning future communities, and in the redevelopment of existing cities, the dispersal of the populace is likely to be stressed as a security measure. The rate of migration outward from the urban center has been increasing for many years, and there will be no conflict of ideologies in the suburban movement. Serious questions may be raised, however, as to the wisdom of redeveloping urban slum areas and increasing population densities by the construction of vast apartment houses where small tenements stood previously. Psychiatrists and sociologists already have opposed the intensification of urbanization on the hypothesis that man lacks the compressibility of gas and tends to change his mental state at a comparatively low pressure. Defense planners seem to have a more easily recognized reason for curbing population concentrations.

A small committee of the American Institute of Architects is already studying the problems in architecture that

have arisen with the advent of the atomic age. They also are attempting to evaluate present architectural and planning principles as they may be influenced by the possibility of atomic or other unconventional methods of warfare. It is significant that the committee has called upon the Public Health Service for technical assistance in preparing its report.

Although numerous problems in the field of housing have resulted from recent scientific discoveries, many possible advantages may come out of this new knowledge. The harnessing of atomic energy and the development of electronics are likely to produce major changes in dwellings of the future. For example, cheap power and mechanization may alter completely the design of kitchens, and change the lot of the housewife so that she will have more leisure. This, in turn, should result in different functional requirements in the design of the rest of the house. Indeed, standards now recommended may rapidly become outmoded.

We need pedestrian research in the physical aspects of housing. But in the years to come there will be an even greater need for truly imaginative study of man in his social and physical environment. Out-of inspired studies may come the keys to a better understanding of the hygiene of housing.

In the meantime it is evident that there exists a wide gap between present knowledge and its application to the job of making dwellings sanitary. The engineer, the epidemiologist, and the health officer, all have the "know-how" now to improve the quality of the existing housing supply, and that which will be built in the near future. The job cannot be done by health departments alone. Rather, there must be coöperative planning and action by local health, building, planning, housing, and fire officials. Part of the framework for this impressive activity will be described by others in this symposium.

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Diagnosis of Rabies

A one week course in the laboratory diagnosis of rabies, April 25 to 29, is announced by the Communicable Disease Center, U. S. Public Health Service, Atlanta, Ga. The course will be held in Atlanta and is open to all grades of employed laboratory personnel. It will consist, essentially, of practical training in laboratory diagnostic procedures supplemented by lectures and demonstrations. There will be no tuition or laboratory fee. Apply to Ernest S. Tierkel, Asst. Chief, Veterinary Public Health Division.

Housing and Health

Appraisal of Substandard Housing *

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THERE is a certain restlessness which is immediately apparent on the part of most public health engineers whenever the subject of housing arises. This reaction is usually traceable to three causes: (1) they are acutely aware of the existence of substandard housing in their communities; (2) they are keenly interested in increasing their activities in this field of sanitation; and (3) they do not have a clear idea of where or how to begin.

They recognize the fundamental truth of the statement of Winslow that "We shall make real progress in the elimination of our slums only when the health department has at its disposal a concise and quantitative picture of the actual current status of housing in each possible problem area of the city—such a picture as it now has with respect to the water supplies and dairies and food stores which serve the community." [1]

They are also aware that in many health departments which have made a sincere effort in this field, there exists a tragic monument to a lost cause. It is composed of row after row of cards, each of which bears the record of from one to several sanitary inspections of housing in the city.

It is a tragic monument, not only because of the expense involved in its creation, not only because the man hours which went into it could have been devoted instead to some more productive effort, but because most of the people affected are still living under deplorably unhealthful conditions, and there is no indication that it either has been or will be possible to use these records to do anything significant about the problem.

During the entire history of the public housing program, these records have not been used on any appreciable scale to produce information on local housing conditions.[2] This has been equally true in regard to the more recent urban redevelopment movement.

In a few communities, the health department has conducted systematic enforcement inspections of substandard housing in selected blocks as an adjunct to the community housing program. In these cities, public housing and urban redevelopment are still guided by the very limited information available from such sources as the 1940 Housing Census and the Real Property Surveys.

Even if we assume that the health department in such a program is well acquainted with the particular types of housing deficiencies prevalent in the community in order to have a sound basis for the development of standards and the promulgation of effective legislation—an assumption which is not always warranted—such an approach still suffers severely from lack of orientation to the overall housing conditions and fundamental planning requirements of the city.

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That the enforcement of legislation alone cannot effect a basic improvement of housing quality is well demonstrated by the editorial comment of a leading newspaper concerning the result of a long existent and exceptionally well administered systematic enforcement program. Commenting on an article in a national home builders' publication claiming extensive accomplishment for the program, the editorial stated in part "The slum clean-up campaign has brought about the replacement of window panes and plaster in some areas, improved sanitary conditions to some extent and compelled landlords and tenants alike to clear out rat-infested cellars and back yards. But the overcrowded, substandard buildings remain exactly that."

Systematic enforcement of this type can be tremendously useful if it is conducted in areas marked for rehabilitation and spot replanning. That, however, must come after the future use of all possible problem areas has been clearly determined.

In a number of cities, the health department has studied substandard housing on a broad scale before attempting more than emergency corrective action. It has pooled its resources and its problems with other city agencies including the planning, housing, and redevelopment agencies, as well as the enforcement agencies such as the building and fire departments.

In one small city, a study of *all* the suspected problem areas was conducted in a few months under the sponsorship of over 35 official and nonofficial agencies. In approximately a dozen other cities, permanent programs under the combined sponsorship of several departments have been in progress for periods ranging from a few weeks to several years. The results in five of these cities are described in a recent issue of *The American City* magazine.[3]

The key to these coöperative programs has been a method of evaluation which produces information on many aspects of housing in a single appraisal rather than considering sanitary, structural, sociological, or other defects separately and alone. This method, the A.P.H.A. housing appraisal method,[4] can produce a body of accurate objective information which is understandable and useful to all local agencies concerned with housing improvements. It can facilitate the formation of official policy by providing the facts needed to classify a city into four groups of areas:

1. Areas in which the dwellings and their environment meet an accepted local minimum standard of quality
2. Areas with moderately advanced blight but in which the dwellings and environment can be restored to an acceptable minimum standard by the enforcement of suitable legislation
3. Areas in which the dwellings are so poor that it would not be feasible to restore them to an acceptable minimum standard, thus making it advisable that they be demolished or converted to other suitable uses
4. Areas in which the environment is so poor that they should be cleared of housing and replanned for other uses regardless of the existing quality of dwellings

The replanning necessary for the improvement of certain areas will also require facts concerning the basic social and economic composition of the population. Much of this information too can be obtained from the descriptive data recorded concerning the dwellings and the occupants.

Where then does a community begin to establish studies of this type? Experience in such cities as Los Angeles, St. Louis, Philadelphia, Brookline, Mass., and Battle Creek, Mich., indicates that the primary requirement is the establishment of a coöperative working arrangement among the interested agencies. As the result of this coöperation, the man power or cash required for the appraisal of areas of mutual interest is brought well within the means of each of the participating agencies.

With the establishment of programs.

of systematic appraisal, many health departments have chosen to reduce the inspection of housing complaints to cases which may present serious hazards to health. They are instead assigning the nuisance complaint inspectors as a share of their contribution to the interagency appraisal program. Some building and fire departments are following a similar procedure. Despite great differences in the background of personnel contributed by the various agencies, workers produce virtually uniform results because of the objectivity of the appraisal procedures.

The results of these coöperative programs have been gratifying. Uses of data have ranged from the preparation of housing legislation and its enforcement through to the guidance of policy and the provision of working data for planning, rehousing, and urban redevelopment. In Los Angeles and St. Louis, the data have served to reveal significant local deficiencies which have been used as guides in preparing and securing the passage of new housing ordinances. In Battle Creek, the data are pointing the way toward the very first steps to be taken in a community which has not previously had a housing program of any type.

The use of the data for planning low-rent housing projects, the selection of tenants, and the systematic rehabilitation or condemnation of the vacated dwellings has been practised in many cities and has been particularly successful in Los Angeles. In all of the larger cities, an outstanding use of the data has been in the selection of areas and the preparation of plans for large-scale redevelopment. The appraisal in Philadelphia, which has been conducted primarily for this purpose, has covered areas totalling approximately 2,500 blocks and 125,000 dwelling units.

Training in the A.P.H.A. appraisal method, until recently available only on a consulting basis from the Committee on the Hygiene of Housing, can now be obtained without charge through the U. S. Public Health Service at the Training Division of the Communicable Disease Center in Atlanta. Information concerning this training may be found in the 1949 catalog of the Communicable Disease Center [5] which is available on request. The Public Health Service is also available for field service to agencies interested in establishing housing sanitation programs.

If we are to rid our communities of substandard housing, we must recognize that they are dynamic living organisms and treat them accordingly. We cannot much longer risk the searching experimental approach of the anatomist to the laboratory specimen. We must instead substitute the controlled approach of the surgeon, in order to be certain that we will remove all the decayed areas without at the same time destroying what is still useful. By intelligent planning and the selective enforcement of appropriate legislation, the factors causing decay can be controlled and much moderately substandard housing can be rehabilitated. By demolishing only the exact housing which cannot be salvaged, and enforcing the rehabilitation of that which can be saved, we may be able to reduce the job of eliminating our slums to practicable economic limits. In such a coöperative program, the health department has a vital part.

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Housing and Health

The Provision of Good Housing *

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THE sequence of talks at this session is a recapitulation of the ever widening field of concern in the evolution of the housing movement. The great "sanitary awakening" of the mid-19th century, which brought water and sewerage systems, was followed by increasing awareness of substandard qualities in dwelling structures per se, hence a wave of restrictive measures. Then came the positive effort to produce decent new dwellings to rehouse low-income families and provide an adequate supply of homes, which broadened in turn to the current emphasis on overall neighborhood and community planning.

It would be interesting to look at this history purely from the viewpoint of the health sciences, for it parallels and expresses the progress of scientific principles and purposes very neatly. Sanitary measures were undertaken to curb the fearful epidemics of filth-bred disease. Then gradually it became clear that not only the absence of dirt but the presence of sun, air, and adequate space are essential to the prevention of disease. And finally the whole emphasis changed from a remedial approach to more positive and constructive goals.

Dr. Winslow has probably done more than any other single individual to bring about this shift in emphasis, so I quote from him. In setting modern housing standards, he says, health "must be interpreted in the broadest sense, to include not only the avoidance of disease but also the positive attainment of mental and emotional well-being." And again, "Health means more than just staying alive. Health means vigor and efficiency and satisfaction in living." We are therefore concerned today not only with restrictive housing standards and the elimination of slums, but also with the provision of homes and neighborhoods that are *positively* good—a residential environment that promotes mental and social well-being as well as physical health per se.

Now if it could just be assumed that these evolving principles would gradually be put into practice—simply by the rational and more or less automatic application of the latest knowledge to concrete human problems under the benign rays of that old *deus ex machina*, "Progress"—the history of the housing movement would hardly be worth mentioning in a meeting like this one. Under such circumstances, if you scheduled a session on housing at all, it would be solely to hear about recent scientific developments likely to affect your own future work. And you would certainly not invite someone like me, with no status whatever as a scientist (hardly even as a lowly "social scientist"), to talk to you. Indeed, such people—I supposed we might best be classified as "agitators" in the housing and planning fields—would have to seek other employment entirely.

But here I am. It is all too obvious that the wheels of progress in housing matters have not been moving as

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smoothly or as rationally as they should have.

So perhaps it may be worth while to remind ourselves that the chronology of the housing movement can be viewed not only as a significant chapter in scientific history, but also as a very lively and important chapter in *political* history.

For every major step in housing progress in the past century has involved some public action, from the early English sanitary measures through the tortuous history of building codes to the U. S. Housing Act of 1937 and the successive proposals to deal with the current shortage. And public action in a democracy usually means political controversy, as was well evidenced by the wild and abortive career of the Taft-Ellender-Wagner Bill in the last session of Congress. Indeed, almost all discussion of the "housing problem" and its solution is now crystallized in political terms — even including the question of technological progress.

It might be claimed, however, that the political aspects of housing, no matter how noisy, are purely secondary and incidental. In an "advanced" country it might be held that, once science has demonstrated the need and the means, political action will be taken sooner or later to whatever extent is necessary to achieve the predetermined ends.

But such a theory gives cold comfort to homeless veterans or harassed local officials in the immediate housing crisis. I propose therefore to explore quite a different hypothesis, which may prove more illuminating as to the nature of our current difficulty. I suggest that political philosophy — the motivating forces behind public action and the application of scientific knowledge—is not secondary or incidental, but *paramount*.

Let us look back very briefly to an earlier illustration. Housing first became a lively political issue in England just about a hundred years ago, when the Earl of Shaftesbury put through the first piece of national housing legislation in 1851. Of course it was essentially an offshoot of the public health movement, whose first great triumph was the English Public Health Act of 1848.

What brought about these measures? Superficially the answer is simple: terrible epidemics on the one hand, and on the other a new faith in the remedial powers of science. But there is a curious time-sequence here which is worth remarking. For the sanitation movement was well under way *before* the need for it was scientifically proved through the development of bacteriology. Here I must turn once more to that indefatigable interpreter of medical history, Dr. Winslow, who wrote that "the scientific basis for the great sanitary awakening was merely a vague consciousness of a relation between filth and disease, colored by traditional Hippocratic doctrine of miasms." Pasteur made his great discoveries in the 1870's, but Chadwick published his classic survey of *The Sanitary Condition of the Labouring Population of Great Britain* a generation earlier, in 1842. And, equally significant, it sold 10,000 copies and started a wave of legislation all over the civilized world.

Clearly, refined scientific proof lagged behind both social conviction and political action. And, even more curiously, the political action was taken at the very zenith (and in the very stronghold) of the doctrine of *laissez-faire*, of every man for himself, and at a time when even the most horrendous results of untrammeled individualism were still excusable on the grim Malthusian argument that without misery there would shortly be overpopulation and general ruin . . . and also, it might be added, long before there was anything approximating universal suffrage to implement the demands of the underprivileged.

But there were other political forces just beginning to take shape: that mixed array of social motives and ideals

which went into what is usually called the "humanitarian" movement. The early health and housing measures were among the first important political expressions of this movement, but its springs go back, undoubtedly, to the 18th century concern for the rights of the individual and the whole hopeful concept of the responsible, perfectible human being which stimulated the rise of democracy.

This was the broad sweep. But the public concern for physical welfare, as distinguished from civil liberties, suffrage, and popular education, can probably be more directly traced to the movement that gradually reformed the English Poor Laws beginning in the early 19th century. These reforms were slow and feeble, but they nevertheless established a world-shaking principle. Henceforth modern society could not just let people die, whether from starvation or sickness, no matter what the dismal science preached. Some minimum care and subsistence had to be provided.

The moment this principle was accepted, the health and housing movements were inevitable, not only on idealistic grounds (or because epidemics spread from slums to other areas), but for economic reasons as well. The taxpayers had an interest, whether recognized or not, in keeping people healthy, just as they had an interest, however disregarded until much later, in keeping people employed at a decent wage. James Tobey, another eminent historian of the health movement, put it baldly: "The first public health reform in England can be said to be really the direct consequence of the Poor Laws, for it was the desire to reduce the enormous expense of caring for sickness which led to this public health act."

Thus was born—out of democratic ideals, fear, and prudence—the principle of "minimum standards," available to all and implemented by public action where necessary, a principle which of course fathered the whole social security movement as well as health and housing measures.

Perhaps this partial economic interpretation sounds cynical? But the intellectual climate of the Victorian era was not one of extravagant idealism, and all reform was likely to be frankly tempered by more practical considerations one way or the other, to put it mildly. Sir Edwin Chadwick, the selfless agitator who had initiated the entire health movement almost singlehanded, was using the language of the times when he devoted a lengthy address to hard-boiled pounds-and-pence arguments for social reform:

"I venture to invite your consideration of men as an investment in capital," he said to the National Association for the Promotion of Social Science in 1869, "as a pecuniary, 'a transaction,' in relation to which we have to consider the means of rearing him with the view to the return of the highest percentage of profit over and above the cost of his nurture . . . upon that investment." When he turns his attention to Glasgow and Manchester, where half the babies then died before their fifth year and the rest were early debilitated, he argues that "this waste of national stock is as it would be with the farmer, if he had to rear two colts to obtain one working horse, and as if the horse when reared did not last in working or productive condition, much of half its natural time."

It was not until the 1930's that we in America began to get a flood of earnest local studies demonstrating that "Slums Cost Money," but the argument had a venerable tradition behind it. Edith Elmer Wood was appealing to the spirit of "enlightened self-interest" in housing matters when she lifted quotes from *U.S.D.A. Farmers' Bulletins* with such effective irony. Some of you doubtless remember them. One was: "Proper housing is an important factor in the successful raising of hogs. If

little pigs are to get the right start in life, they must have plenty of sunshine." And another: "Growing chicks and laying hens need comfortable houses that are dry and roomy, with plenty of fresh air and sunlight. It never pays to overcrowd them."

It seems clear that one of the historic mainsprings of housing reform is the political principle that maintenance of certain essential minimum standards is in the *public interest*.

This principle is, as a matter of fact, quite generally accepted in the United States today, even with respect to housing. Such an eminent conservative as Senator Robert Taft made no headlines when he said in a Congressional hearing, "The Federal Government is committed to a policy of housing . . . on a social welfare ground. We are interested in providing a floor under essential services so we can eliminate, as far as possible, extreme poverty and hardships from the United States . . . Housing is one of those things."

Why, then, are we not farther along toward a solution of the housing problem? Why, when it is so clear that ordinary private enterprise cannot possibly solve the shortage or get rid of the slums by itself, has it been so difficult to revive even a token program of federal aid for low rent public housing? Why is the housing situation in 1948 in the richest country in the world worse than it is in the Scandinavian countries, worse even in some respects than in England, despite all their wartime destruction and post-war economic crises?

Certainly there is no lack of proof that bad housing conditions are socially harmful, no lack of knowledge as to what an acceptable "minimum standard" in housing should include.

Perhaps the principle of "minimum standards" is not enough to galvanize us into positive action, after all. The fact is that the progressive European democracies have within the past generation accepted an additional and much more dynamic political principle with respect to housing. With the rise of social democratic parties and labor and coöperative organizations, the *direct* interest of ordinary consumers and wage earners (as distinct from the "enlightened self-interest" of the early humanitarians) began to make itself felt in housing matters. And with it came a new political concept: *the right to a decent home*. Henceforth it was not just a question of "minimum standards" to allay disease or prevent divorce or save the taxpayers money (or of sporadic housing programs tied to one emergency kite or another, to provide employment or increase the birth rate or improve the physical qualities of soldiers or lessen the danger of revolution), but good housing for all, to be provided by public action where private enterprise could not do the job, on the fundamental democratic principle of *equal opportunity*. It was on this basis that the remarkable inter-war housing achievement in several European countries was brought about.

Nor is this principle unrecognized in America. Indeed, it has never been better stated anywhere than by the Committee on the Hygiene of Housing of the American Public Health Association, whom I am happy to quote in such appropriate surroundings: "The case for proper housing for our people does not depend upon . . . evidence that the provision of good homes in good neighborhoods lowers death rates or reduces sickness. It has ample justification in the democratic principle that people are entitled to an opportunity for good homes just as they are entitled to an opportunity for education."

But we have not yet accepted this principle in America in any effective political sense. We have had a series of emergencies; in fact there has been one kind of housing crisis or another almost continuously ever since 1917, and the

present shortage has been developing ever since 1930. We have also had a hectic succession of emergency measures, some sound though limited, some partly or wholly opportunist. But we have nothing remotely resembling a broad, well considered long-term national housing policy. And most of our failure and confusion to date are due, I think, to the simple fact that we have not yet accepted the principle that American families are *entitled* to decent homes.

Syrup of Urethane and Lithium Salt Substitutes Embargoed

The Food and Drug Administration, Federal Security Agency, Washington, D. C., has recently had occasion to issue several warnings dealing with drugs which are of considerable public health interest.

The Administration has directed seizures of Syrup of Urethane, a cough syrup manufactured by Marvin R. Thompson, Inc., Stamford, Conn. Physicians, pharmacists and consumers are warned that the administration of urethane in the quantity recommended on the label may cause a dangerous lowering of the white blood cell count. More than 2,300 gallons of the syrup have been distributed in about 3,400 packages throughout the country. The coöperation of public health workers in locating and embargoing this product is requested in view of the obvious difficulty in locating all samples promptly.

According to the Administration, the drug urethane has been used as a sedative for about 100 years, but recent medical studies indicate its potential danger when used as directed in the labeling of this syrup. Most cases, however, discontinuing the use of urethane, result in the return of the white blood cell count to normal in a short time.

The Food and Drug Administration has also declared that there is considerable doubt as to the safety of unrestricted use of any salt substitute in the presence of cardiovascular-renal disease and a low sodium diet. The Administration has declared that each salt substitute is a new drug within the meaning of the Federal Food, Drug, and Cosmetic Act, and that interstate distribution of each salt substitute should be discontinued until a new drug application has been filed and has become effective with respect to the substitute.

Recent experiments on lithium chloride made by the Administration show that it is toxic to animals, and untoward reactions in man appear to have resulted from the consumption of lithium chloride.

On February 18 the Administration learned of deaths attributed to lithium chloride and through public announcements of the dangers it has advised that the use of this drug be discontinued. The symptoms of lithium chloride poisoning are drowsiness, weakness, loss of appetite, nausea, tremors of the extremities, blurring of the vision, and coma.

Housing and Health

The Planned Community *

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IF there is one point on which planning and housing experts have reached agreement it is that the home is more than a dwelling unit, or even more than a collection of dwelling units. All members of the family today spend a considerable portion of the daylight and evening hours outside the house, and housing environment has come to be recognized as equal in importance to the dwelling unit itself. In planning our communities and our large-scale housing developments, therefore, we must consider the relationship of the dwelling not only to the private space which surrounds it but also to the public facilities for recreation, education and culture, and to neighborhood shopping and transportation centers.

Clarence Perry has defined housing environment as comprising "that area which embraces all the public facilities and conditions required by the average family for its comfort and proper development within the vicinity of the dwelling."[1] Whether or not we agree that the word "*neighborhood*" accurately describes such an area in its physical concept, it is generally agreed that it represents the minimum area for the purposes of comprehensive planning.

The A.P.H.A. Committee on the Hygiene of Housing, on which I have had the pleasure of serving during the past 10 years, has adopted Perry's concept of the neighborhood and in its recently published report entitled, *Planning the Neighborhood*, states that:

> Acceptance of the neighborhood concept implies that adequate housing consists not merely of the individual homes, no matter how well planned or how well located; but that all residential and community facilities and services required for the shelter, health and convenience of the residents of a neighborhood must be included in a neighborhood—or must be made available to its residents.[2]

The committee further states that,

> Standards for housing environment must deal at least with the smallest geographic unit which includes those basic facilities and conditions; a unit which will permit organization of physical surroundings to eliminate inconveniences and hazards; and which will provide a physical form suitable for the full development of community life.[3]

In addition to community facilities for education, recreation, shopping, and transportation, provision must also be made for water supply, light and fuel supply, telephone, storm water and sewage disposal, other waste disposal, fire protection, and police service.

If we recognize the importance of the housing environment to the health, safety, and general welfare of our urban and rural population, it is essential that we come to some agreement on the ways and means of attaining our objectives. I do not have time, within the limits of this short paper, to describe and justify the standards of neighborhood or community design which must be adopted if we are to raise the quality of family living in our residential areas. In any case, a full description will be found in the report of the Committee

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on the Hygiene of Housing to which I have already referred.

As practitioners in the field of public health, I believe you would be particularly interested in the administrative and legal means that are available to, or desirable for, the average American community in the proper development of its residential areas. You come in direct contact with many of these in your everyday work and in the case of some, such as housing and sanitary codes and building regulations, you have had a considerable influence on their adoption and enforcement.

The chief legal means for the proper control and guidance of land development in this country are Master Plans and Official Maps; Zoning Ordinances; and Subdivision Regulations. These are closely related controls, but I will discuss them in turn.

The concept of the Master or Comprehensive Plan, as it has developed in the United States, is not a single map but a program. It is comprehensive in scope, and involves all matters affecting the development and redevelopment of a city or region. It represents the best thinking of the planning agency, aided by all other departments of the government that are affected. The Master Plan deals with such problems as land utilization, highways and transportation, schools and recreation, water supply and sewage disposal, and housing. Such a plan should be considered as a guide to future development rather than as a blueprint for a specific construction program, for which reason the proper timing of projects should be given as much consideration as their location or design.

The methods by which the Master Plan is used to control future development vary in different parts of the United States, depending on state enabling legislation and local ordinances. However, the usual procedure is to require that no physical improvements in a municipality may be carried out by an operating department unless they conform to the Master Plan. A less stringent control occurs where only a report from the planning agency is required before action can be taken by an operating department. In recent legislation in the United States providing for the redevelopment of blighted areas in cities, it is required that plans for redevelopment be in accordance with the Master Plan for the whole city, and that the planning agency designate the general type of development appropriate to each area.

In the legislative aspects of planning, much progress which has been made in recent years is in the field of Zoning. In the United States, the legal basis for this phase of planning activity is the police power. This means that each ordinance must be confined to dealing with problems relating to the "health, safety, morals, convenience, and general welfare" of the community. For this reason, zoning regulations in different parts of the country are quite similar, although some states go further than others in the delegation of powers to local authorities. The development of zoning came about primarily because of the need for improved conditions of light and air in and around buildings. It also stemmed from a desire to preserve the character of established residential districts by protecting them from an intermixture of commercial and industrial uses. More recently, restrictions on population density have been incorporated in many zoning ordinances, usually by specifying the minimum size of lot upon which a dwelling may be built. In the case of multi-family districts, the minimum area of lot per family is specified. Some residential districts in outlying suburban communities have enacted ordinances containing minimum lot sizes of from one to five acres.

Zoning also provides an effective means of preventing the development of land unsuitable for any intensive pur-

pose. What is commonly known as "Rural Zoning" has as its object the restricting of large undeveloped areas to forestry or recreational uses. In a number of states, rural zoning has been successfully used to prevent the construction of residential or commercial buildings on sub-marginal land or within the boundaries of flood plains.

Next in importance to zoning, in the procedures which make possible the better planning of urban and rural areas, is the use of regulations dealing with Subdivision Control. In the past these have generally been confined to restrictions governing the location, width and grading of streets, in order to insure that future connections can be made with water and sewer mains and that streets can be properly drained of surface water. Such regulations are usually administered by the engineering or public works department of the community, or in some cases by a separate agency such as the Board of Survey in Massachusetts. There is a strong tendency toward placing this power in the hands of the local planning commission, which in the past has acted in an advisory capacity only. This has made possible a much closer relationship between control over the private subdivision of land and the planning of public streets, buildings, and open spaces.

We are inclined to minimize the efforts of those architects and engineers of the 19th century who worked for the enactment of adequate planning legislation. In a study I made 12 years ago for the Massachusetts State Planning Board on the history of community planning in Massachusetts, I came across the following quotation from a report prepared by N. Henry Crafts, a Boston consulting engineer, who was engaged to prepare a plan for the future extension of the sewer system of the City of Haverhill. In connection with this plan Mr. Crafts found it necessary to lay out a number of new streets, and his report to the city includes the following proposal:

> I would make it unlawful for the owner of any undeveloped lands within the limits of such towns or cities as may accept the proposed legislation, to lay out any proposed streets, ways, or courts, or to proceed to build the same, or to sell land bordering upon such prospective streets, ways, or courts without first giving notice to the proper authorities, filing a plan showing the proposed location and grades of the street and receiving a permit. In this way, the whole matter of the location of streets on undeveloped lands may be controlled and directed in such a manner as to obviate the extravagant outlays which almost every town or city of my acquaintance has had to incur in street widenings, extensions, and changes of grade.[4]

This report was published in 1877—just 71 years ago—but it was 30 years later before the Board of Survey Act was passed by the General Court in Massachusetts and nearly 60 years went by before planning boards were granted general powers of control over subdivision design.

It is unfortunate that the aspects of zoning and subdivision control in the United States have been separated from planning to a greater extent than is the case in other countries. One of the results of this has been the enactment of zoning regulations in communities which have prepared no plans for future physical development. Zoning then becomes an instrument for maintaining the status quo. At best it results in the protection of existing developed areas from invasion by uncongenial uses of buildings or land. However, the tendency on the part of most planning agencies is definitely in the direction of a closer coordination of planning and zoning. In the preparation of new zoning ordinances and the revision of existing ones, more effort is being made to relate areas set aside for different uses to the probabilities of development. This attitude has been stimulated by the fact that the rates of growth for both population

and land values in the central areas of many large cities are downward. For the same reason, zoning regulations are tending to become more restrictive, particularly as they affect building height and coverage and population density.

One example might be mentioned to indicate how planning is becoming recognized as an essential factor in the improvement of community values. The broad powers granted to the City Planning Commission under the charter adopted by New York City in 1938 may be considered a case in point. Here a department of government, which formerly had been acting only in an advisory capacity, was vested with the responsibility for regulating and coördinating all elements in the physical development of the community. It is worth noting that the City Planning Commission of New York is responsible not only for the preparation of a Master Plan dealing with future developments such as streets, parks, buildings, utilities, and other services. It is also responsible for the preparation of the capital outlay budget, a long-term financial program based on individual requests for appropriations submitted to the Commission by the heads of city departments. During the past 10 years, this procedure has been officially adopted by a number of other cities and towns.

I think I have said enough to indicate that most of our communities have sufficient power to carry on an effective planning program if they choose to do so. Why is it, then, that so much of our residential and commercial development is continuing to follow patterns which are socially and economically undesirable? Some of the responsibility can doubtless be placed on professional planners and on members of planning commissions. Many of the latter are not fully alive to the opportunities for sound community planning that are available to them under existing legislation. They suffer from inadequate budgets, disagreement as to social objectives, and a certain amount of interdepartmental jealousy. There is an insufficient supply of qualified planning technicians and consultants, and to some of these expediency is a more controlling factor than imagination.

However, I do not believe it is on the shoulders of our planning commissions or of our professional planners that we can place the major responsibility for our failure to achieve the goal of the Planned Community. If the majority of our citizens were convinced of the desirability of exercising foresight in the future development of our cities and towns, no city council or board of selectmen could be elected which ignored the principles of sound planning.

Planning is just as much a political and administrative function as a technical one. Until long-range planning and pragramming is recognized as an integral part of government in a democratic society, at the policy making as well as the departmental level, it is idle for us to draw up beautiful master plans and elaborate reports showing the way in which we would like to see community development take place. The day of the Planned Community will come only when foresight and teamwork is recognized as the joint responsibility of architects, engineers, planners, municipal officials, and the great body of the public for whom the plans are being made.

The public is quick to recognize that on it falls the cost of planning and development. Perhaps when it is equally well understood that it is the public which must pay the price for *not* planning, we will be well on the road to the Planned Community.

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Q Fever

History and Present Status *

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MUCH progress has been made in our knowledge of Q fever since it was first described in 1937. The story had two beginnings at about the same time curiously enough; one in Australia, the other in the United States. In each instance an infectious agent was isolated and classified as a rickettsia. These infectious agents, isolated on opposite sides of the globe, were soon shown to be identical.

In 1940 this disease, scarcely considered as of more than minor importance up to that time, suddenly assumed greater stature when, through the study of a laboratory outbreak, it was found to produce a pneumonitis and clinically in many instances to resemble the atypical pneumonias. At the present time the known endemic areas, spotted with epidemics, are widely scattered over the globe—Australia, the United States, various countries of the Mediterranean area, Panama, and Switzerland. Finally, Q fever has added one more to the ever increasing list of animal diseases transmissible to man.

In 1937 Derrick [1] published a report on cases of a hitherto unrecognized disease entity which had been occurring in a large abattoir in Brisbane, Australia, since 1933. To this disease he gave the name Q fever. In his original report he described nine cases in detail while brief notes on additional cases resulting from laboratory infections were made by Burnet and Freeman,[2] and by Smith, Brown, and Derrick.[3]

It has been stated in the literature that the name Q fever was given the disease because it was first described in the state of Queensland, Australia. This apparently is in error. Derrick and Burnet [4] give interesting accounts of the choice of the name.

In the early investigations the disease was known as abattoir fever. This seemed undesirable on account of implications of possible danger to meat supplies, and also on account of probable objections on the part of the industry. It soon became clear to the Australian investigators that the disease was also present on farms. Derrick tried to find a suitable name of Latin or Greek derivation without success and finally chose "Q" fever, the "Q" standing for "Query." The name, "Queensland Rickettsiosis" was discussed, but rejected, as it was thought cases might be found outside of Queensland. It is evident from the foregoing that the use of the name Queensland fever is historically incorrect.

Although many additional cases have been reported by Australian investigators, no very definite epidemiological deductions have been drawn. As has been noted, the cases first reported by them occurred among workers in an abattoir. The individuals affected were not engaged in the same activities in their daily work, nor did they work in any particular section of the abattoir, and there was no evidence which would suggest person-to-person transmission.

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Using serologic methods, cases have been identified in Australia outside the original Australian focus. These cases have been among foresters and dairy workers.

In the abattoir we at once think of the possibility of acquiring infection through actual contact with the animals in process of slaughtering and preparation of animal products, or by infected air-borne particles containing matter from animal sources. In cases among farmers that source of infection is probably present, as it may be among foresters, but the rural group also suggests contact with infected arthropods.

Derrick [5] succeeded in transferring the infectious agent of Q fever from some of his cases to guinea pigs by blood inoculation, and later he and his colleagues found other common laboratory animals and several species of native rodents and three native marsupials to be susceptible. Burnet [6] found that the etiological agent passed through bacterial filters and discovered rickettsia-like bodies in the spleens of infected mice. He was able to grow these organisms on the chorio-allantoic membrane of the developing chick embryo. Derrick [7] subsequently suggested the name, *Rickettsia burneti,* for the organism observed by Burnet.

Probably influenced by the fact that the etiologic agent appeared to be rickettsial in nature rather than by any definite epidemiological evidence, Derrick and Smith [8, 9] made search for infected animals and infected arthropods in nature and succeeded in isolating three strains of *R. burneti* from bandicoots and six strains of the organism from ticks (*H. humerosa*). Smith [10] was able to show transmission of the infection to guinea pigs by infected ticks of the same species during the process of feeding.

In 1938, Davis and Cox,[11] and Parker and Davis [12] at the Rocky Mountain Laboratory at Hamilton, Mont., reported the isolation of a filter-passing agent, infectious for laboratory animals, from the tick *Dermacentor andersoni.* The ticks from which this infectious agent were recovered had been collected in the spring of 1935 near Missoula, Mont., at a place called Nine Mile Creek, and the disease produced in animals was called "Nine Mile Fever." This name was used in one of the early publications. The authors noted in their first publication that this was probably the same infectious agent encountered by Noguchi in 1926 under similar circumstances.

The Montana workers described a rickettsia-like organism which was associated with the new infection and named it *Rickettsia diaporica* on account of its ability to pass through ordinary bacterial filters, differing, in this characteristic, from other recognized rickettsiae. In the laboratory it was noted that this rickettsia was transmitted to susceptible animals by *D. andersoni* in the process of feeding, and that it survived in ticks through successive moults and through the egg stage.

Cox [13–15] failed in attempts to cultivate this organism on a wide variety of media, including all those found suitable for the growth of such organisms as tularense, leptospira, and bartonella, but found that it grew readily in living tissue cultures.

Since the early work in Australia and Montana, several species of ticks have been found infected in nature or have been shown to be able to transmit the infection experimentally, but aside from occasional incident, it does not seem that ticks play an important part in the transmission of the disease to man, although they may be important factors in maintaining the disease in nature. The ticks so far incriminated are *Dermacentor andersoni,*[11] *Dermacentor occidentalis,*[16] *Rhipicephalus sanguineus,*[17] *Ixodes holocyclus,*[18] *Haemaphy-*

salis bispinosa,[19] *Ornithodoros moubata*, *Ornithodoros hermsi*,[20] *Amblyomma americanum*,[21] *Hyalomma savignyi*,[22] and the spinous ear tick, *Otobius megnini*.[23]

In 1938 one of the workers[24] of the staff of the National Institute of Health, Washington, D. C., spent 4 days in the laboratory in Montana where the infectious agent isolated by Davis and Cox from Montana ticks was being carried in laboratory animals. This worker returned to Washington and there developed an illness of about 10 days' duration; the incubation period was from 11 to 15 days. From his blood an infectious agent was isolated in guinea pigs and identified as the same infectious agent as was under study in Montana, (*R. diaporica*). How the disease was contracted in the Montana laboratory was never determined. This strain, called the X or Dyer strain, was studied in animals and found to produce no immunity against strains of Rocky Mountain spotted fever and typhus. As it happened, the individual who had contracted the Montana infection, had been working in the laboratory in Washington with the Australian Q strain which had been sent to him by Burnet. This strain had been lost several weeks before the time of his illness, but five recovered guinea pigs remained on hand. These animals were found to be immune to the Montana strain. A second strain of the Q fever organism was secured from the Australian workers and serological and immunological comparison with the Dyer strain showed that these strains were at least closely related, if not identical.[25, 26] Subsequently, work by Burnet and Freeman[27] in Australia confirmed these findings.

The knowledge of this disease and of the causative agent up to the spring of 1940 may be summarized as follows:

An infectious agent had been isolated from human cases of illness, and from naturally infected bandicoots and ticks in Australia, and identified as a rickettsia. A rickettsia had been isolated from ticks in Montana and, by accidental laboratory infection, had been found to be infectious for human beings. These two rickettsiae had been shown to have at least a very close relationship, being serologically and immunologically identical. These rickettsiae, or this rickettsia, had been shown to be present in arthropods in nature, and naturally infected animals had been found in Australia, and the conclusion seemed warranted that this disease was arthropod-borne in nature.

Although the etiologic agent of Q fever was classified as a rickettsia, it was recognized early that certain differences exist between it and all the other rickettsiae. Morphologically and in its tinctorial and cultural characteristics it belongs with the other rickettsiae. On the other hand, it does not develop agglutinins for any known strain of Proteus, and it readily passes bacterial filters. These variations, coupled with the fact that the organism shows greater resistance to physical and chemical agents than other rickettsiae,[33] justify the setting up of the Q fever organism as the type organism of a new genus, Coxiella (Philip 1943), hence, *Coxiella burnetii* supersedes *R. burneti* and *R. diaporica*.[28]

A few cases, apparently contracted in nature, have been reported in this country,[29, 30] but convincing epidemiological evidence incriminating arthropods as transmitters to human beings is lacking. Until the spring of 1940 we had the picture of a rickettsial disease fairly widespread and probably arthropod-transmitted from one or more animal reservoirs with probably some human cases being contracted directly from infected animals. At that time, there was no suggestion of pneumonic involvement in human cases.

The originally held ideas of this disease changed rather abruptly in the

period from March 27 to May 17, 1940. During that time 15 clinically similar cases of infection occurred in one of the buildings of the National Institute of Health in Washington, D. C. From 3 of these cases, strains of the infectious agent of Q fever were isolated by Dyer, Topping, and Bengtson.[31] At that time two strains of Q fever were being carried in animals in the building. One of these strains was the original strain from Australia, while the second was the Dyer strain isolated from the first Washington case of 1938.

A careful investigation of the 15 cases at the National Institute of Health revealed little of epidemiological significance. The cases occurred in persons who worked in various sections of the building, with the exception that no cases developed in those employed in the group of rooms in which actual work on Q fever was being carried on. The most reasonable explanation of the absence of cases among those actually exposed in these rooms to animals infected with Q fever lies in the possibility of immunity produced by unrecognized infections. That this might be the correct explanation was suggested by the presence of Q fever rickettsia agglutinins in low titers found in the sera of 6 of the 10 persons working in the Q fever unit as compared to 4 of 20 persons working elsewhere in the building exclusive of those having a recognized infection with Q fever.

There was no evidence that the disease spread in the building by personal contact, nor were there any recognized cases in the families of the patients, nor was there any evidence that an arthropod vector was responsible for the transmission of the infectious agent. However, since the cases were limited to the building in which the disease was being studied, it seemed probable that the disease spread from infected laboratory animals or embryo cultures in some fashion, possibly being carried throughout the building by dust. Later in the year (September to November) 2 additional cases occurred in the same building. From each of these cases the infectious agent was isolated. Transfer of the Washington Q fever laboratory was made to new quarters in 1941. In the winter and spring of 1945 and 1946 (December to May), 47 cases of the disease occurred among the persons working in the building. The epidemiological findings corresponded closely to the indefinite findings of the previous outbreak.[32, 33]

At the time of the first outbreak at the National Institute of Health, the possibility of the presence of similar unrecognized cases in the general population was considered. This seemed possible since the causative agent was probably widespread in nature and since the clinical features of the disease bore a remarkable similarity[34] to the so-called cases of atypical pneumonia which had been reported in the medical literature with increasing frequency since Bowen's[35] report of 1935. Consequently, shortly after the initial outbreak at the National Institute of Health, thorough study was made of two institutional outbreaks of atypical pneumonia in an effort to determine their relationship to Q fever. The results were entirely negative.[36–38]

The cases described in Australia, and the later cases in Washington did not differ materially in the clinical pictures, and this is true of cases subsequently reported from other parts of the world. Additional clinical findings of lung involvement not noted in the Australia cases were brought out in the Washington cases. It is not the purpose of this paper to discuss the clinical picture, but it is important to stress the clinical similarity of Q fever cases with cases of atypical pneumonia. The case fatality rate is very low. Four deaths have been reported in this country to date, and two in Australia. A case fatality rate

less than one per cent is reported for Balkan grippe.

An outbreak resembling influenza occurred in Athens, Greece, in 1943. From a patient in this outbreak, Caminopetros [39] recovered an organism which was later shown to be *C. burnetii*. This disease was shown to be endemic in that area during the war and was called "Balkan Grippe" by the Germans.[40–42]

The presence of the organism in cows' milk has been reported in this country,[43] and in Greece, sheep and goats and their milk have been shown to harbor Q fever.[39] The disease probably exists in other countries in that region—Bulgaria and Roumania.[44, 45]

In 1944 and 1945, Robbins, et al., recognized epidemics of Q fever in the U. S. troops in Italy.[46–48] The findings in the study of these outbreaks confirmed the observations made during the laboratory outbreak at the National Institute of Health in 1940, that person-to-person contact was not important in the transmission of this infection, if, in reality, it ever occurred. This, in spite of the fact that *C. burnetii* has been recovered from the blood, urine, and sputum of patients suffering from the disease.

At about the same time (1945),[49] a strain of the organism of Q gever was recovered from a patient in Panama, the disease apparently being endemic in that area.

Outbreaks of Q fever also occurred among our troops returning from Italy.[50, 51] Comparison of various strains of *C. burnetii* (Australia, America, Balkan grippe, Fort Bragg, Panama, Italy) by Topping, Shepard, and Huebner [52] showed complete cross-immunity in guinea pigs while complement-fixation and agglutinin absorption tests showed similarity in immunological specificity.

In the outbreaks among our troops in Italy, association with domestic livestock, hay, and bedding was noted. Pigeons were numerous around the billets in some instances, but in one instance were absent. Arthropod transmission did not appear likely. It is interesting to note that complement-fixing antibodies were found in the blood sera of a large proportion of the native population in the Italian areas around army troops.

Laboratory cases were also reported at Fort Bragg, North Carolina.[53] In 1947, Caughey and Dudgeon,[54] reviewing 511 cases which had occurred among British and New Zealand troops in the Naples-Caserta area in 1945, with the aid of the complement-fixation test carried out at the National Institute of Health, found that 19 of 20 sera tested were positive for Q fever.

In 1948, Gsell [55] reported cases of illness which had occurred in Switzerland in April, 1947. The identity of these cases with Q fever was confirmed by Cox, using the complement-fixation test. Association with cattle was noted in these cases.

In the United States, although it was realized that the disease was probably present, no evidence of endemicity was obtained until 1946 when outbreaks occurred among abattoir and stockyard workers (reminiscent of the first Australian cases) in Amarillo, Tex.,[56–59] and Chicago, Ill.[60] Again, in these outbreaks, just as in the institutional outbreaks at the National Institute of Health and the Italian epidemics, the most likely mode of infection seemed to be the inhalation of, or contact with, infected material, most probably from infected animals. In this country the disease has also been recognized in Arizona [61] and Montana.[30]

In 1947, cases were recognized in Los Angeles County, California.[62] The first cases were not among abattoir or dairy workers,[63] but practically all gave history of exposure to cows, some of which were found to possess serum antibodies for Q fever. Further studies in Califor-

nia, which are being continued by the California State Department of Public Health, Los Angeles County and Los Angeles City Health Departments, and the U. S. Public Health Service, have shown that *C. burnetii* is present in raw milk[43] produced in the area, but the importance of infected milk as a factor in the transmission of the disease to man is not yet determined. Early experiments indicated that pasteurization eliminated most if not all of the demonstrable infection in milk. Contact with livestock by reason of occupation or residence, at present, seems to be an important factor. This was also suggested by the findings in the Balkan area.

Work has been done in the preparation of vaccines by Cox,[15] Bengtson,[64] and by Smadel.[65] Laboratory experiments indicate their value, but no field data are available as to protecting man against the infection. It should be noted that no cases of Q fever have occurred among laboratory workers who have been vaccinated. Huebner, Hottle, and Robinson[66] have produced some evidence that streptomycin may be of value in treatment.

SUMMARY

In Q fever we have a disease with known potential sources of infection in infected cows, sheep, goats, the milk of these animals, wild animals, and a wide variety of ticks. Epidemiologic studies of the occurrence of Q fever in abattoir workers, laboratory workers, dairy workers, and residents of dairy areas indicate that an important method of transfer of the infection to man is through the medium of contaminated air, whether this be by droplet infection or by dust.

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Q Fever

Experimental Q Fever in Cattle * †

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THE purpose of this paper is to present briefly some of the results obtained following the inoculation, or other controlled exposure, of cattle to *Coxiella burnetii*, the causal agent of Q fever.

Much of the evidence derived from epidemiologic studies of Q fever has emphasized the importance of contact with livestock as a means of human infection. The Australian investigators were the first to note that the disease occurred primarily among dairy farmers and abattoir workers.[1, 2] In the United States, the naturally occurring outbreaks in Amarillo, Tex.,[3] and in Chicago, Ill.,[4] were also associated with stockyards and slaughter-houses. Furthermore, it seemed clear from studies of these latter outbreaks that infected cattle in Amarillo and infected calves or sheep in Chicago had been the source of human infection.

The occurrence of natural Q fever infection in cattle was first indicated serologically,[1, 5] and was later confirmed [6] by the recovery of *C. burnetii* from raw milk of several dairies in Los Angeles County, California. As might be expected from these findings and from the epidemiologic observations noted above, this disease was found to be endemic in Southern California.[7] Studies of over 150 human cases in this area revealed that 40 per cent had had some contact with livestock.

Although the importance of cattle as a source of human infection seems established, the epizoölogy of this disease is not obvious, nor is it clear by what means infection may be transmitted from cattle to man. With these questions in mind, controlled laboratory studies of the experimental infection of cattle with Q fever were initiated. It was believed that information derived from such studies might be of considerable value, especially in planning investigations of this disease as it occurs in nature.

Experimental infection of cattle with Q fever has been reported previously by Derrick, Smith, and Brown [1] in 1942 in Australia and by Blanc, *et al.*[8] in 1948 in Morocco. The Australian investigators reported the results of the subcutaneous inoculation of two calves with infected guinea pig tissue. Both calves manifested a mild febrile reaction for one day, the 3rd day after inoculation. One was sacrificed on the 4th day and *C. burnetii* was recovered from the spleen and liver. The infective agent was also recovered from a 4th day blood specimen of the second calf, and Q fever antibodies were detected in its serum from the 11th to the 29th day. Blanc

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and his associates, working in Morocco, state that they were able to infect cattle with this disease, and that these animals showed a mild febrile reaction followed by the development of agglutinating antibodies for *C. burnetii*.

METHODS AND MATERIALS

A more detailed description of the experiments to be reviewed in this paper is included in other manuscripts now in press or in preparation for publication. The various materials obtained from experimental cattle were tested for infectivity by injecting them into guinea pigs. Guinea pigs were bled approximately 30 days after inoculation and their sera tested for Q fever antibodies by the complement-fixation test. Subsequent to bleeding, the animals were tested for immunity by inoculation with a known strain of Q fever. The development of antibodies in the sera of guinea pigs and immunity to reinfection with *C. burnetii* were regarded as evidence that the material injected was infected. Prior to inoculation, the cows were shown not to have specific serum antibodies and their milk and blood were shown not to be infectious for guinea pigs.

EXPERIMENTAL

Studies of experimental Q fever in cattle were begun at the Rocky Mountain Laboratory in 1947.[9, 10] The initial work involved attempted infection of 4 heifers which were inoculated by different routes, namely, intranasal, intravenous, by way of the alimentary tract, and by way of the vaginal tract. Specimens of blood, nasal washings, feces, and urine, taken at 5 day intervals for a period of one month, were tested for infectiousness in guinea pigs. Results of these four experiments were apparently negative.

Subsequent to these initial studies, additional experiments involving 9 lactating cows, 2 male calves, and 1 heifer, have been undertaken. Seven of the cows were inoculated with Q-fever-infected yolk-sac cultures, and 2 were hosts to experimentally infected ticks. The calves were fed infected milk. The heifer was tested by instillation of the inoculum into the conjunctival sac. A summary of the results of tests so far completed for these experiments follows.

Experiment 1—In November, 1947, infection was readily produced in 2 milk cows, Nos. 1 and 2, following udder inoculation of massive doses of a yolk-sac culture of the Nine Mile strain. Three of the quarters of the udder of cow No. 1 were inoculated as follows: one by way of the teat canal, one via the mammary gland, and one subcutaneously. Only a single quarter of cow No. 2 was inoculated via the teat canal. Milk specimens from all four quarters of both cows were tested at least once a week up to the present time. Milk from uninoculated quarters has not become infectious.

Foremilk or strippings from the single inoculated quarter of cow No. 2 were infectious through the 48th day. All specimens in subsequent tests performed for a period of more than 181 days have been negative.

Tests of similar specimens from the three inoculated quarters of cow No. 1 demonstrated that milk from the quarter inoculated by way of the teat canal was infectious for 17 days; that from the one inoculated via the glandular tissue was infectious for over 200 days; while that from the quarter inoculated subcutaneously remained non-infectious.

Tests of at least 12 specimens each of the blood, feces, urine, and nasal washings, taken from each cow during the first month after inoculation, were consistently negative. Daily rectal temperatures taken for a period of over 2 months did not reveal a significant temperature rise in either of the two animals. Complement-fixing antibodies for Q fever appeared in the serum of both

cows about the beginning of the 2nd week. In subsequent tests, the serum of cow No. 1, which has continued to shed rickettsiae in its milk, has remained positive. In contrast, tests for Q fever antibodies in the serum of cow No. 2, whose milk has been non-infectious since the 48th day, yielded inconsistent and questionable results after about the 60th day. Since that time, the antibody titer of this cow appears to have dropped below a significant diagnostic level.

Experiment 2—In a third lactating cow, a heavy inoculum, consisting of a yolk-sac culture of a California strain (recovered from milk of a naturally infected cow) was introduced into the cervical canal. Pooled aliquots of first-milk samples from the four quarters were tested for infectiousness at 2 day intervals until the 20th day and thereafter at intervals of twice a week.

During the first 18 days postinoculation, only three of ten milk samples were positive, those of the 6th, 10th, and 18th days. However, nearly all specimens taken from the 18th through the 160th days have been positive. Individual milk specimens from each of the four quarters, which had been routinely frozen and stored at —70° C. during this experiment, were thawed and retested separately. These tests revealed that the left front quarter was the only quarter secreting infectious milk.

Specimens of urine, examined for a period of 80 days, were positive on each of the first 8 days, but were negative in all subsequent tests. Specimens of blood taken each day for the first 10 days and thereafter at intervals of at least 5 days were consistently negative. Daily rectal temperatures which were taken for a period of 6 weeks revealed no significant temperature rises.

Q fever antibodies, as detected by the complement-fixation test, appeared in the serum of this cow, and have been consistently present at relatively high levels through the 191st day postinoculation.

Development of infection in the mammary gland of this cow is an interesting observation. The means by which this occurred, however, is a matter of speculation. Contamination of the orifice of the teat by infected urine present on the floor or bedding is possible, since the urine was infectious during the first 8 days postinoculation. The infectious agent in the urine is believed to have been derived by contamination from the inoculum which may have been present in the more external region of the vaginal tract. That infection in the udder was not blood-borne is suggested by the failure to detect the presence of rickettsiae in this material.

Experiment 3—This experiment was planned primarily for the purpose of determining the symptomatology and pathology of Q fever in lactating cows. Six cows were used, 4 of which were inoculated with large amounts of a 10 per cent suspension of an infected yolk-sac culture of the same California strain of *C. burnetii* used in the previous experiment. The remaining 2 served as controls and were injected with a corresponding amount of normal yolk-sac tissue. The inoculum was introduced through the teat canal of the two left quarters of the udder of each cow. Infected cows were sacrificed on the 5th, 11th, 22nd, 63rd days after inoculation. At autopsy, numerous tissue specimens were obtained and fixed for histopathologic study, and portions of the same tissues were stored at —70° C. for subsequent inoculation into guinea pigs. During the period before the animals were sacrificed, samples of milk and blood were tested for infectivity in guinea pigs. Milk was tested three times a week, while the blood was tested each day for the first 10 days, and thereafter three times a week. Detailed laboratory tests, including hematological studies, urine analysis, and chemical analysis of

the milk, were conducted three times a week. Clinical observations were made daily.

C. burnetii was isolated from the blood of all 4 test cows on two or more of the first 5 days, but not from blood taken after this time. Milk from all but one of the injected quarters was infectious from the 1st day after inoculation until the date of sacrifice. In the exceptional case, milk from the left front quarter of the cow sacrificed on the 63rd day became non-infectious on the 44th day. In this same cow, milk from one of the non-inoculated quarters became infectious on the 7th day. Repeated titration in guinea pigs of milk from a single quarter of the cow sacrificed on the 63rd day revealed the presence of rickettsiae in dilutions of at least 10^{-5} and 10^{-4} on the 2nd and 7th days post-inoculation, respectively, and thereafter at 5 day intervals at a dilution of only 10^{-1}.

Following inoculation with *C. burnetii*, an acute mastitis accompanied by a marked systemic reaction was produced. The mastitis during the acute phase was characterized clinically by marked swelling, subcutaneous edema, feverishness, enlargement of supramammary lymph glands, and evidence of pain upon palpation of affected quarters. Microscopic examination revealed a marked increase in the cellular constituents of the milk from infected quarters. The cell count of foremilk rose to a peak of 20 to 30 million per cu. ml. and consisted chiefly of polymorphonuclear leukocytes. During the acute stage of the mastitis, temporary metabolic changes in the activity of the mammary gland were manifested by variations in the content of certain of the constituents of the milk. Among these fluctuations observed were a marked increase in butter fat concentration, increase in chlorides, decrease in lactose, and a marked decrease in total daily milk production. No significant change was noted in the pH of the milk. Recovery from the acute phase of the mastitis was spontaneous. In general, the major symptoms and other changes had disappeared by about the 8th day after inoculation.

The systemic reaction was of brief duration and preceded and accompanied the acute mastitis. It was characterized by a marked pyrexia, slight serous nasal and lacrimal discharges, moderate to severe depression, partial inappetence, infrequent rumination and shallow rumen movements, moderate tachycardia, and a moderate polypnea accompanied only by a definite increase in vesicular murmur. Examination of the blood revealed no marked changes in its cellular constituents, hemoglobin content, or sedimentation rate. No evidence of kidney pathology was revealed by urinalyses conducted at various intervals during the acute and chronic stages of the infection.

Tissues obtained at autopsy and stored at —70° C. were subsequently tested for infectiousness in guinea pigs. Although many of these tests are incomplete, a brief summary will be given of the results to date. Among the specimens tested were the lung, liver, spleen, kidney, heart, brain, adrenal gland, lymph nodes, intestinal tract, and mammary gland. Of those tested from the cow sacrificed on the 5th day, practically all were positive. It should be recalled, however, that the blood of this cow was also infectious on this day. A second cow was sacrificed on the 11th day. Although its blood was negative on each of the 5 days prior to sacrifice, nevertheless, a number of tissues from this cow were positive. Included among the positive tissues were the lung, liver, spleen, the right and left supramammary lymph glands, and the mammary gland tissue taken from the inoculated quarters. Negative results were obtained in a single test of the kidney, heart, and mammary gland tissue taken from the non-inoculated quarters of the udder.

Gross pathology in the sacrificed cows was confined chiefly to the mammary gland and regional lymph glands. In the cow sacrificed on the 5th day, the inoculated quarters were very edematous, with heavy serous accumulations in the subcutaneous tissue of the udder. A marked serous lymphadenitis was noted in the left supramammary and left deep inguinal lymph nodes. Although rickettsiae were recovered from most of the tissues tested to date from this cow, there was little or no pathology observed in other organs. In the cows sacrificed on the 11th and 22nd days postinoculation, the outstanding lesion was a serous lymphadenitis of the left supramammary and left deep inguinal lymph glands. As the infection had become established in the right rear quarter of the cow sacrificed on the 63rd day postinoculation, both supramammary glands were enlarged and edematous.

The 2 control cows in this experiment were used to detect tissue reactions to the normal yolk sac and to detect changes in milk production and composition due to experimental conditions. The normal yolk-sac suspension excited a tissue reaction which was reflected in changes in chemical composition and cellular constituents of the milk. This reaction was of a transitory nature, and changes in production and milk composition were not of the magnitude observed in the infected cows. The control cows remained afebrile and manifested no systemic reaction to the nonspecific mastitis. Weekly injections of milk into guinea pigs and complement-fixation tests of sera of these cows revealed no spontaneous Q fever infection during the course of the experiment.

Experiment 4—This experiment was conducted to determine whether unweaned calves would become infected following ingestion of Q fever infected milk. Infectious milk from cows used in the previous experiment was fed by pail to 2 calves, aged 3 weeks and 3 months, respectively. The milk used was a pool made up of approximately equal portions of infected and normal milk. Each calf received about 6 liters of the pooled milk per day, one until sacrificed, and the other for a period of more than 30 days. The 3 month old calf became febrile on the 13th day after its first infective feeding and was sacrificed on the following day while still febrile. Q fever developed in guinea pigs injected with 4th, 6th, and 12th day blood specimens and an 8th day fecal specimen. Of the tissues obtained at autopsy, only animals injected with the prescapular lymph node and abomasum developed Q fever.

No symptoms were observed in the 2nd calf, although Q fever developed in the guinea pigs injected with 4th and 13th day blood specimens and in those receiving 2nd, 6th, 10th, and 14th day feces. Tests of nearly all fecal specimens taken during the first 20 days, other than those reported above as positive, were rendered valueless by intercurrent bacterial infections of the injected guinea pigs. Tests of urine specimens from both calves were consistently negative.

Based on tests completed to date, it is uncertain whether infection was produced in these calves. The febrile reaction in one of them and the development of Q fever in guinea pigs injected with some of the daily blood specimens from each calf are suggestive of infection in the calves. However, the question of spontaneous infection [11] in the test guinea pigs must be considered. This is suggested by the observations that the blood-injected guinea pigs developing Q fever represented intermittent and not consecutive blood specimens and that guinea pigs receiving only two of the numerous tissues tested from this calf sacrificed while febrile became ill with this disease. In order to demonstrate definitely the presence of *C. burnetii*,

tissues of this calf are being cultured in the yolk sacs of fertile hen's eggs.

Q fever antibodies were not demonstrated in the serum of the surviving calf. This apparent failure to develop specific antibodies may have been due to the young age of this calf.

Additional experiments — Transmission of Q fever to cows by infected ticks of the species *Otobius megnini* Dùges is being attempted. Results to date are indefinite. The only evidence of successful transmission has been the apparent development of Q fever antibodies in the serum of one of the cows. These antibodies appeared about the 3rd week after infestation of the cow with infected ticks, and were present in significant titers from the 20th to 30th days. In later tests the serum antibody titers were low and irregular. Since rickettsiae have not been recovered from blood or milk specimens tested periodically for more than 2 months, it cannot be safely assumed that this cow was infected. Further experiments along this line are to be conducted.

In another experiment, infection of a heifer was attempted by instillation of Q-fever-infected yolk-sac material into the conjunctival sac. The only evidence suggestive of infection was the appearance of specific serum antibodies on about the 7th day postinoculation.

DISCUSSION

Knowledge of the route or routes by which cattle become infected with Q fever in nature is important. Of interest in this respect is the finding that infection is readily produced in the udder of lactating cows following exposure of the mammary gland to *C. burnetii*, and that the rickettsiae are eliminated in milk from the infected quarters for long periods of time. Moreover, attempts to infect cattle by other routes were less definitely successful. The latter results were obtained in heifers, and a single strain of *C. burnetii* was used for inoculation. They are, therefore, inadequate as a basis for comparing the various routes of inoculation for their ease of producing infection. Further tests employing lactating cows and other strains of the rickettsia should be conducted.

In studies [6] of naturally infected cows, clinical symptoms were not observed, and although *C. burnetii* has been isolated from the milk, mammary glands, and supermammary lymph nodes of such animals, it has not been recovered from the blood or other tissues. Whether these observations were made during the acute or chronic stage of the disease is not known. However, that definite clinical symptoms and the presence of *C. burnetii* in the blood and other extramammary tissues may occur during the acute stage of the infection in cows under natural conditions is suggested by the results observed in the experimental disease. In the latter, there was an acute mastitis and a marked systemic reaction for a relatively brief period, yet rickettsiae were recoverable from the mammary gland or its secretion for relatively long periods after inoculation. In addition, rickettsiae were recovered from the blood and numerous other extramammary tissues during the acute stage of the disease. It should be recalled, however, that massive infective doses of *C. burnetii* were employed in these experiments. Whether use of smaller doses more closely approaching conditions expected to occur in nature would yield similar results is not known. Nevertheless, the experimental findings indicate the desirability for further studies under natural conditions.

In the present studies it was found that Q fever rickettsiae were recoverable from the feces of calves ingesting infected milk. It has not been determined whether the presence of *C. burnetii* in this material represents an elimination of the agent following infection of the calf, or merely its passage through the ali-

mentary tract following ingestion of infected milk. Nevertheless, the experimental observation suggests that the feces of calves feeding on infected milk in a natural environment may be concerned with the spread of Q fever among cattle and from cattle to man.

SUMMARY

Q fever infection in lactating cows has been produced consistently by inoculation of *Coxiella burnetii* via the lactiferous duct. Rickettsiae were found in the milk of these cows for long periods of time, in some cases for over 200 days after inoculation. Exposure of the mammary gland to massive doses of a yolk-sac culture of *C. burnetii* excited an acute mastitis accompanied by a marked systemic reaction. These symptoms appeared to be of brief duration, and recovery was spontaneous, yet rickettsiae continued to be shed in the milk. In animals showing these symptoms, rickettsiae were recovered from the blood during the acute period, and from numerous other tissues obtained from cows sacrificed at various intervals up to 63 days after inoculation.

Q fever rickettsiae were recovered from the feces of calves feeding on infected milk. However, infection by this method was not definitely proved.

Experiments involving attempts to infect cattle by other routes of inoculation and by infestation with infected ticks *(Otobius megnini)* are described.

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1948 International Red Cross Meeting

A report by Basil O'Connor, President of the American National Red Cross, is now available of the first meeting of the International Red Cross since 1938. This was the 17th International Red Cross Conference held in Stockholm in August, 1948.

The conference is the highest deliberative body of the International Red Cross world and is made up of the International Committee, the 66 national Red Cross society members of the League of Red Cross Societies, and the 72 government signatories to the Geneva Conventions.

The report is available from the American National Red Cross, Washington 13, D. C.

Q Fever

Q Fever Survey in Southwest Texas *

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AFTER the occurrence of the March, 1946, outbreak of Q fever at Amarillo, Tex., the Texas State Health Department continued to search, particularly by laboratory procedures,[3, 4] for other cases. Because of the relative scarcity of ticks[1] and apparently negative findings on cattle sera[5] in this area it seemed probable that more promising areas for investigation of Q fever in Texas could be found. *Coxiella burnetii* had been demonstrated in pools of ticks collected in southeast Texas in 1937[6] and later at Camp Bullis near San Antonio.[7] Evidence of this infection in packinghouse workers at Fort Worth has also been reported.[8]

In February, 1948, a survey of packinghouse workers at San Antonio, Tex., was begun. It was planned to search for cases of Q fever in several communities in southwest Texas. A search of raw milk samples for *C. burnetii,* the causative agent of Q fever, was also begun.

In much of southwest Texas, the people are to a considerable extent of Latin-American descent, and the Negro population is low. Ranching and diverse farming activities provide occupations for many, and toward the Rio Grande Valley the climate is subtropical and suitable for winter gardening. In the lower Rio Grande Valley citrus orchards are abundant.

Methods of Investigation—Through the coöperation of several local physicians the names of persons who had undergone recent febrile attacks were obtained. Cases of "virus pneumonia" especially were sought. Blood samples were taken by local physicians, or persons were visited, interviewed, and blood samples were obtained by us. Upper respiratory infection constituted the main group of illnesses to be differentiated from Q fever in the spring, while typhus more often was considered in the summer.

The complement-fixation test was of great help in the recognition of Q fever. For the most part the complement-fixation antigen was prepared from the Italian (Henzerling) strain of *C. burnetii,* but the Nine Mile antigen was also utilized on some occasions. Survey bloods from slaughter-house workers and food handlers, as well as milk samples, were obtained in connection with routine tests. All sera were examined in a "screen" test, with a single tube at a 1:10 or 1:20 dilution. All positive tests were repeated quantitatively.[3] The titer was expressed as the highest dilution at which 3+ or 4+ fixation was seen. Blood clots and milk samples to be

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TABLE 1

Epidemiological and Clinical Findings With Twelve Cases of Q Fever

Case No.	Age	Occupation	Date of Onset of Illness	Duration of Fever (Days)	Symptoms at Onset	Cough	Expectoration	X-ray
1	24	Butcher	11-10-47	10	Headache, malaise	+	—	
2	20	Butcher	11-24-47	4	Headache, nausea	—	—	
3	40	Butcher	12-17-47	10	Malaise	++	+	Atypical pneumonia
4	35	Butcher	12-18-47	8	Headache, malaise	++	+	Pneumonitis, or atypical pneumonia
5	43	Butcher	12-23-47	3	Malaise	+	—	
6	19	Butcher	12-25-47	6	Headache, chills	++	+	Atypical pneumonia
7	28	Postal clerk	3- 3-48	12	Headache, nausea	++	+	Atypical pneumonia
8	78	Rancher	4- 1-48	21	Malaise	++	++	
9	28	Construction worker	5- 2-48	5	Headache, malaise	+	—	
10	40	Machinist	9- 6-48	9	Malaise, nausea	+	+	Pneumonitis, or atypical pneumonia
11	19	Laborer	9-20-48	7	Headache, malaise	+	—	Pneumonitis
12	31	Housewife *	10- 1-48	12	Malaise	+	—	

* All others were males.

tested for *C. burnetii* [4] were stored in duplicate in the frozen state, so that all positive tests could be repeated. Mice, hamsters, or guinea pigs were used for isolation of *C. burnetti.*

Investigation of a Small Outbreak of Q fever in Packinghouse Workers at San Antonio—Almost immediately as a result of the survey in packinghouse workers at San Antonio, a serum showing a very high titer for Q fever was encountered. Upon inquiry the recent occurrence of "virus pneumonia" in workers on the killing floor of one of the major packinghouses at San Antonio was revealed. Three cases, all showing unusually high Q fever titers readily were located. (Cases 3, 4, and 6 in Tables 1 and 3). Case 3 was the general foreman on the killing floor and had become ill December 17. Case 4 was supervisor of the tankage department and had become ill December 18. Case 6 worked in the beef cooler and had become ill December 25. Other members of their families had not been ill. Since the dates of onset were grouped closely it appeared probable that there had been a common source of exposure, and that some of the livestock butchered had been the source. In view of reports [9, 10] on the incubation period in Q fever it appeared that exposures were in late November or early December, 1947. Approximately 80 persons were employed on the killing floor and conceivably a somewhat larger number could have been exposed. During the probable exposure time there had been days when several butchers were absent. None of those ill in December could recall removing ticks from themselves. Hogs, sheep, goats, and cattle had been butchered in late November and early December. Sheep and goat carcasses also passed through the "beef cooler." Since hogs are not handled in the "beef cooler" they were probably not involved. The subsequent serologic survey revealed only one more butcher (case 5 in Tables 1 and 3) who evidently was exposed and became ill December 23. Perhaps others with low titers, as shown in Table 2, were exposed in late November or early December, and had inapparent infections in December, 1947. The low attack rate suggested that the source of infection was not widely disseminated, or perhaps that some workers had been exposed in previous years.

Serologic Survey of Q Fever in Slaughter-house Workers at San An-

TABLE 2

Q Fever Complement-Fixation Titers With Sera from Packinghouse Workers at San Antonio, Texas

Packinghouse	No. Sera Tested	No. Negative	No. Sera With Titer 1:10	1:20	1:40	1:80	1:160	1:320
1	190	182	3	..	1	1*	..	3*
2	182	172	3	4	1	1	..	1
3	148	140	..	2	4	..	1†	1†
4	96	94	2	..	..	..	..	..
5	94	92	..	1	1	..	..	..
6	88	81	2	4	1	..	..	..
7	79	73	1	1	4	..	..	..
8	71	70	1	..	..	..	..	..
9	62	59	2	1	..	..	..	..
10	59	58	..	1	..	..	..	..
11	52	49	1	..	1	1	..	..
12	49	46	2	..	1	..	..	..
All Others	86	79	2	2	1	1	..	1
Totals	1,256	1,195	19	16	15	4	1	6

* December 17–25, 1947, outbreak
† November, 1947, cases

tonio—The majority of sera were from persons working on or about the killing floors. Practically every slaughter-house in San Antonio was included in the survey. There was a great majority of men in various age groups and mostly with Latin-American names.

Approximately 5 per cent of these sera had a titer of 1:10 or more, and approximately 2.8 per cent had a titer of 1:20 or more, as shown in Table 2.

The individuals with Q fever antibodies mainly were butchers and were scattered among several plants. There was no clear evidence that any particular job on the killing floor was most hazardous. There was some evidence that those few who worked exclusively with hogs were found less often to be reactors. However, it is doubtful that any epidemiological significance could be attached to this observation, because of lack of definite information on workers' activities in relation to exposures.

In the five packinghouses where the higher titers were found, the men were interviewed and absentee records were reviewed for dates of any illnesses during 1947 or 1948. While the results were impossible to evaluate in some instances, it seemed evident enough that two butchers (cases 1 and 2) employed by a second large packinghouse had Q fever in November, 1947. There seemed to be a good possibility that cases 1 and 2 were exposed during the course of their work, perhaps on the same occasion, late in October or early in November, 1947, when both men assisted with butchering cattle, sheep, goats, and hogs. There was no evidence that any others of the 50 men on the killing floor, or others who conceivably were exposed, had been ill in November, 1947.

Serologic Survey of Q Fever in Food Handlers at San Antonio—Five hundred and sixty-five sera from food handlers at San Antonio were examined by the "screen" test for Q fever. This group was similar to the slaughter-house workers' group except for differences in occupation. The group comprised a great preponderance of males of various age groups mainly with Latin-American names. Five hundred fifty-six of these sera were not reactive in the 1:10 serum dilution. Seven showed 4+ at 1:10 and two at 1:20 serum dilution.

Recognition of Scattered Cases of Q Fever in Southwest Texas—Table 1 lists the clinical cases of Q fever which have been found by preliminary investigations in San Antonio and other widely scattered communities in southwest

Texas. The diagnosis of Q fever in each case was based on clinical and confirmatory laboratory findings. The typical clinical history was the same as that described by others.[2, 5, 10] The onset was acute with fever, headache, chills or chilly sensations, and body aches or pains. Chest discomfort was common, and cough was frequently complained of but was not a prominent symptom. Physical examination usually revealed little of note. There was no rash. Chest plates frequently revealed an atypical pneumonic process. The leucocyte count tended to be normal or only slightly elevated. The febrile period usually persisted 1 to 2 weeks and convalescence was prolonged especially in older patients. No deaths occurred.

When the patient was seen in the acute phase of illness, blood was obtained both for antibody test and animal inoculation. Another blood specimen was sought late in the illness or after recovery for possible rise in antibody titer. It was believed that diagnosis was most firmly established by demonstration of a marked rise in antibody titer or recovery of *C. burnetii.* Some patients had recovered when the history notes and blood specimens were obtained, so that the criteria for recognition of Q fever rested on typical clinical history and demonstration of complement-fixing antibodies in high titer, as shown in Table 3.

Since the patients were contacted mainly after the acute phase of illness, the isolation of *C. burnetii* was successful only with case 7. This strain appeared to be typical of the Q fever organism. It caused an enlarged spleen in which the characteristic organisms were demonstrable. Mice developed complement-fixing antibodies in high titers, both with antigens prepared from American (Nine Mile) and Italian (Henzerling) strains of *C. burnetii.*

Epidemiologic Findings on Scattered Cases of Q Fever in Southwest Texas—From Table 1 it is seen that the age of confirmed clinical cases varied from 19 to 78 years. With the exception of case 12 all were men. However, this is of doubtful significance because of the possibility of poor sampling. The cases occurred from November, 1947, to October, 1948, and were still occurring. It seems likely that Q fever has been present for some time. No seasonal in-

TABLE 3

Laboratory Findings With Twelve Cases of Q Fever in Southwest Texas, 1947–1948

Case No.	Date of Onset of Illness	Bleeding Dates 1948	Complement-Fixation Titers					
			1:20	1:40	1:80	1:160	1:320	1:640
1	11-10-47	4- 5-48	4	4	4	4	3	—
2	11-24-47	4- 5-48	4	4	4	3	—	—
3	12-17-47	2-25-48	4	4	4	4	4	4
4	12-18-47	2-25-48	4	4	4	4	4	4
	"	3-19-48	4	4	4	4	4	4
5	12-23-47	5- 4-48	4	4	4	4	—	—
6	12-25-47	2-10-48	4	4	4	4	4	4
7	3- 3-48	3-11-48 *	—	—	—	—	—	—
	"	3-18-48	4	4	4	—	—	—
	"	4- 2-48	4	4	4	4	4	4
	"	8-30-48	4	4	4	+	—	—
8	4- 1-48	4-24-48	4	4	4	4	4	4
9	5- 2-48	9-24-48	4	4	4	4	3	—
10	9- 6-48	9-10-48	—	—	—	—	—	—
	"	9-15-48	—	—	—	—	—	—
	"	9-27-48	4	4	4	4	4	4
11	9-20-48	10- 7-48	4	4	4	4	4	4
12	10- 1-48	10-11-48	4	4	4	4	—	—
	"	10-21-48	4	4	4	4	4	4

* *C. burnetii* was recovered from the clot

cidence is as yet evident. The cases are listed in Tables 1 and 3 in chronological order.

While cases 1 through 6 were butchers, no common epidemiologic factor in cases 7 through 12 is as yet evident. Three cases claimed they drank only pasteurized milk. It is interesting that case 7 claimed he drank only pasteurized milk, but it was learned that the cafe which served the coffee that he and his coworkers at the local postoffice drank several times daily served raw cream with the coffee. Some worked with livestock while others neither worked with, nor lived very near livestock. Working with goats and sheep rather than cattle seemed to be of probable significance in case 8. The possibility of infection from tick bite as a common factor is difficult to rule out, but, with one exception, none could recall recent tick bite before onset of illness. The location of these cases over a wide area is of particular interest.

Demonstration of Complement-fixing Antibodies in Sera from Goats and Sheep—The possibility that case 8 had acquired infection on the W. C. ranch seemed excellent. This man had been working daily with large numbers of goats and frequently with the much smaller flock of sheep on the W. C. ranch. He could not recall seeing any ticks around the sheep or goats. There was a lone cow and her calf on the ranch. Blood specimens were collected from the cow and calf, from three sheep, and approximately in equal numbers from goats raised on the W. C. ranch and from a few truck loads brought to the ranch the previous fall from two other distant ranches. Sera from the cow and calf were negative. It should be mentioned that results of tests on sera from cattle elsewhere have been difficult to interpret since titers found so far have been consistently very low. One of three sera from sheep and eight of fifteen sera from goats, including bearers of each of the three brands, showed the presence of antibodies. Each of the five sera from goats raised on the W. C. ranch showed a titer, ranging from 1:10 to 1:160.

The Demonstration of C. burnetii in Raw Milk and Its Possible Significance in Epidemiology of Q Fever—Raw milk samples were received on ice from several communities in southwest Texas usually in connection with routine tests according to A.P.H.A. Standard Methods. Duplicate tubes on each sample were stored in a deep freeze box until the result of the "screen" test for Q fever on a pool of samples became known. Six to fifteen (with an average of ten) samples from as many dairies were included in a pool. Routine samples were picked up on delivery routes or collected from bulk milk either at the dairy or the processing plant before pasteurization. Specimens collected by us were taken at the dairy either from individual strippings or from pools of small strings of cows. One ml. of milk was inoculated intraperitoneally in each of four mice, or occasionally 2–5 ml. of milk was inoculated in a hamster or guinea pig. In some few instances small doses of penicillin were given. One or two mice were sacrificed at 10 days and their spleens were saved in a deep freeze box. The remainder were bled at 21 or 30 days for complement-fixation test. Passages were not attempted with 10 day spleens as a rule unless a mouse for 21 or 30 day bleeding was not available or showed a titer. Serial bleedings were attempted on hamsters and guinea pigs. Two of seventy tests on pools gave unequivocal positive results. Likewise, unequivocal results were obtained on one sample each from the components of the two positive pools and involved two widely separated dairies in southwest Texas.

DISCUSSION

A small outbreak of Q fever in butchers employed by one of the larger

San Antonio slaughter-houses was encountered as a result of a survey. This outbreak was explosive and occurred in December, 1947. While it seemed evident that the infections were acquired in the course of work, it was impossible to assess the relative importance of cattle, sheep, and goats as the probable source of infection. Since three of the four men ill showed evidence of pneumonitis or atypical pneumonia, the possibility of infection from inhalation was suggested. The low attack rate suggested that exposure was limited or that some workers were immune. The relatively low attack rate perhaps was more typical of the picture in Australia [11] than the outbreaks at Amarillo, Tex., in March, 1946,[1] and Chicago, Ill., in August, 1946.[10]

Results of a survey in slaughter-house workers at San Antonio suggested that the December outbreak of Q fever perhaps was not unique but merely was the most recent. In another slaughter-house two cases had occurred in November, 1947. It seemed probable that Q fever had been occurring for quite some time, as was found at Fort Worth, Tex.[8] Many of those having antibodies for Q fever lacked a history of illness particularly suggestive of Q fever and it seemed likely that several had undergone mild or inapparent attacks. Many of these butchers have followed this occupation for years and perhaps had Q fever antibodies in past years which in some instances had become negative.[5] The percentage of sera showing antibodies was significantly greater in slaughter-house workers than in food handlers at San Antonio.

The list of cases of Q fever shown in Table 1 is undoubtedly only a very small fraction of the total number of cases which have occurred in southwest Texas. Most of these persons were patients of a few physicians who were especially curious, or the diagnosis was made more or less accidentally. Undoubtedly physicians will become increasingly aware of the possibility of Q fever and will make increasing use of laboratory facilities to aid in the diagnosis of this disease.

Frequent failure to obtain a history of intimate contact with livestock was somewhat confusing, however, many persons perhaps would not recall occasional intimate contacts with livestock. It seems probable that case 8 had acquired the infection through working with goats or sheep rather than cattle. The finding of *C. burnetii* in raw milk confirms the report of Huebner and others,[12] in California, and certainly suggests the possibility of infection through ingestion of contaminated milk. The possibility of survival of *C. burnetii* in improperly pasteurized milk has not as yet been investigated.

SUMMARY

1. Six cases of Q fever which occurred among butchers in two slaughter-houses at San Antonio, Tex., in November-December, 1947, were found as a result of a survey.

2. Approximately 5 per cent of slaughter-house workers' sera at San Antonio, Tex., showed complement-fixing antibodies for Q fever. Approximately 1.6 per cent of food handlers' sera at San Antonio showed complement-fixing antibodies.

3. Six cases of Q fever were found in widely scattered communities in southwest Texas.

4. *C. burnetii* was identified in raw milk samples from two dairies in southwest Texas, but the significance of this finding was not determined.

5. Complement-fixing antibodies were found in sera from sheep and goats on a ranch where a case of Q fever occurred.

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Frontal Attack on Cerebral Palsy

The first national conference on cerebral palsy was held in New York January 6–11. Attended by 1,500 persons, it explored the medical and social aspects of the ailment and laid the groundwork for a national program similar to those for tuberculosis, infantile paralysis, heart disease, and cancer. Among the facts brought out by the conference are that there are about half a million victims of the crippling disease in the country, and that 75 per cent of them can be rehabilitated and taught to gain the use of their muscles.

The preliminary framework for a National Foundation for Cerebral Palsy has been established through Leonard Goldenson, Vice-President of Paramount Pictures and father of a five year old sufferer from cerebral palsy. Three of the other founders, including Albert Felmet, Jr., President of the New York State Cerebral Palsy Association, are parents of cerebral palsied children.

The program for which the foundation plans to work includes federal aid for adequate special educational training for the handicapped; Congressional appropriations for improved local public health services; expansion of state school health activities and crippled children's services; formation of a national research center to work on causes and management of cerebral palsy; federal, state, and local aid for professional training to combat the affliction; and the expansion of citizen associations in the field.

The foundation has temporary offices in the New York Academy of Medicine Building, 2 East 103rd St., New York City. Arthur Larschan, first Vice-President of the New York Group, is serving as its temporary chairman.

Q Fever

Complement-Fixing Antibodies with C. *burnetii* Antigens in Various Geographic Areas and Occupational Groups in the United States *†

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Q FEVER is world-wide in its distribution. Within a decade since its recognition in Australia [1] the disease has been identified in the United States, the Mediterranean area,[2] Switzerland,[3] Germany,[4] and Panama.[5] Although a few sporadic cases had been recognized previously,[6, 7] the first epidemic occurring under natural conditions in this country was reported from Amarillo, Tex., in March, 1946, and involved persons employed in a stockyard and meat packing plant.[8] In August, 1946, a second natural epidemic, also involving packinghouse workers, occurred in Chicago.[9] In the fall of the same year an endemic focus of Q fever was discovered in Los Angeles County, and in the course of the subsequent year approximately 150 cases were identified.[10, 11]

The mode of transmission of Q fever to human beings has not been defined satisfactorily nor has its natural reservoir or vector been clearly identified. In Australia [12] and in the United States [13, 14] ticks infected with *Coxiella burnetii* have been found in nature and in sporadic instances have been responsible for the human disease.[7, 15] Investigations of the epidemics in this country and in the Mediterranean area, however, have not incriminated ticks or other arthropods as the vectors of Q fever. Two of the 3 American epidemics have involved packinghouse and stockyard workers but the manner in which infection took place was not established. In the Los Angeles County outbreak the investigators pointed to a relationship with dairy cows, and indeed milk from such animals was found to be infected with *C. burnetii*.[10] However, it was not established that infection took place through the ingestion of milk. At present, no single explanation seems adequate to satisfy the varying circumstances under which the disease has been recognized.

A complement-fixation test has been devised for the detection of antibodies against a *C. burnetii* antigen prepared from the infected yolk sacs of embryonated hen's eggs.[16] Such antibodies have been found to persist in sera following naturally acquired infections for as long as 17 months.[17]

In view of these facts, it appeared desirable to undertake a serological survey to determine the frequency with which antibodies against a *C. burnetii* antigen occurred in different geographic areas and among different occupational groups. Sera from packinghouse workers and dairy workers were selected because of the previous occurrence of Q

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fever among such workers. In addition, samples of sera from the general population in widely separated areas of the country were secured. A preliminary report of the occurrence of antibodies against *C. burnetii* in packinghouse workers in Fort Worth, Tex., has already been presented.[18] In this report the results of complement-fixation tests on 5,470 sera are summarized as follows: packinghouse workers at Fort Worth, 1,433 sera; packinghouse workers at Austin, Minn., 150 sera; routine serological laboratory specimens from Amarillo, Tex., 175 sera; routine serological laboratory specimens from Dallas, Tex., 1,033 sera; routine serological laboratory specimens from Boston, Mass., 965 sera; routine specimens from prospective blood donors from Dallas, 798 sera; specimens from dairy workers in the Dallas milk shed, 350 sera; and, finally, routine serological laboratory specimens from Portland, Ore., 566 sera (the latter collected and tested for antibodies by Dr. A. W. Frisch and the results included in this report with his kind permission). The results have been analyzed with regard to the specificity of the serologic tests employed, and for the information they yield with regard to the frequency of occurrence of antibodies for *C. burnetii* in the United States.

METHODS

Serum specimens were transported to this laboratory within 2 days after collection if obtained locally, or by air express from distant points, and were stored in a deep freeze cabinet until tested.

The Q fever antigen was prepared from the yolk sacs of embryonated eggs infected with a strain of *C. burnetii* (American Nine Mile) isolated in Montana in 1935.[13] The antigen was a washed rickettsial suspension prepared by a combination of ether extraction to remove fats and repeated centrifugation cycles to remove extraneous proteins and fats.[19] Two lots of antigens were used (Q9M-5-16 and Q9M-4-26). Almost all sera reacting with *C. burnetii* antigens were also tested with a yolk sac antigen prepared from uninfected embryonated eggs.*

Complement-fixation tests were performed according to the method of Bengtson.[16] The antigen was diluted 1:32 (2 units). Complement was titrated in the presence of antigen, and 2 units of complement were used in the tests.

Serial twofold dilutions of inactivated sera were made, using a single pipette for each serum specimen. The hemolytic system consisted of equal volumes of 2 per cent sheep erythrocytes and amboceptor made up to 2 units. In performing the tests, 0.2 ml. of diluted antigen, serum, and complement were added to each tube, mixed thoroughly, and stored at icebox temperature for 18 hours. Sensitized sheep erythrocytes (0.4 ml.) were then added, and the tubes held at 37° C. in a water bath for 1 hour or until control tubes showed complete hemolysis. Appropriate serum and antigen controls, as well as known positive and negative human and guinea pig sera, were included in each series of tests. The endpoint was read as the highest serum dilution showing at least 3+ fixation.

All sera were examined in a "screen" test using 2 dilutions of serum: 1:8 and 1:16. Sera having titers of 1:16 in the "screen" test were retested in twofold serial dilutions from 1:8 to 1:512 or greater.

Serological Tests for Syphilis—A variety of serological tests for syphilis were performed. Approximately 40 per cent of the sera were tested in one Dallas laboratory (Parkland Hospital) by routine Kahn and Kline tests, Kolmer type

* The *C. burnetii* and normal yolk-sac antigens were prepared in the laboratories of Dr. Herald R. Cox, Lederle Laboratories Division, American Cyanamid Company; generous supplies were made available by Dr. Cox.

TABLE 1

Complement-Fixation Titers against C. burnetii and Results of Serological Tests for Syphilis among 5,470 Sera from Various Geographic Areas and Occupational Groups in the United States

Series	Date of Collection	Results of STS				Results of C-F Tests against C. burnetii								
		No. + or ±	No. Neg.	No. Unknown	Per cent + or ±	No. Sera Tested	No. Positive C. burnetii and + or ± STS	Serum Titers *						Per cent Positive 8 or >
								AC	< 8	8	16	32	64 or >	
Fort Worth meat packers	May-June 1947	58	1,375	0	4.0	1,433	6	81	1,238	34	48	15	17	8.0
Minnesota meat packers	Nov 1947 Jan. 1948	1	142	7	0.7	150	0	5	144	1	0	0	0	0.7
Amarillo serology lab.	Aug. 1947	10	165	0	5 7	175	2	19	142	6	6	0	2	7.9
Dallas serology lab.	July 1947	397	636	0	38.4	1,033	63	78	850	39	55	7	4	10.2
Boston serology lab.	Oct.-Nov. 1947	102	963	3	9.6	965	1	45	909	1	8	1	1	1.1
Dallas blood donors	Dec. 1947 Mar. 1948	24	774	0	3.0	798	1	10	771	9	8	0	0	2.1
Dallas dairy workers	Mar.-Apr. 1948	4	311	35	1.1	350	1	6	337	3	2	2	0	2.0
Portland, Ore. serology lab.	1948	1	470	95	0.2	566	0	2	554	6	4	0	0	1.8

+ = positive STS
± = doubtful STS
AC = anticomplementary serum
* = highest serum dilution yielding 3+ or greater fixation

complement-fixation tests, and by the use of cardiolipin antigens. Another 20 per cent were tested by similar techniques, including the use of cardiolipin antigens in the laboratory of the Fort Worth Health Department. The sera from Boston were tested by the Hinton test in the laboratory of Dr. William A. Hinton. The remainder were tested by the Amarillo Health Department and by Dr. A. W. Frisch by the usual Kline and Kahn techniques.

RESULTS

The results of the studies are presented in 2 parts: first a description of the origin and composition of the various groups from which serum specimens were obtained and the antibody titers found; and second, data bearing on the specificity of the test.

Fort Worth: packinghouse workers—Serum specimens obtained from 1,433 persons employed in the actual handling and processing of meat and meat products in one large and several small packinghouses at Fort Worth, Tex., were tested for complement-fixing antibodies against *C. burnetii* antigen. A preliminary report of this study has been published.[18] The data will be summarized here for comparison with the results of other studies. The specimens were collected during May and June, 1947, by the Fort Worth Health Department for the performance of routine serological tests for syphilis required of food handlers. The majority of persons tested were adult white males but complete data on age, sex, and racial composition of the total group were not available.

Among the entire group of 1,433 sera, 8 per cent exhibited complement-fixing antibodies in a titer of 8 or more. The titers are recorded in Table 1. Seventeen serum specimens (1.2 per cent) had titers of 64 or more; among these, 10 had a titer of 64, 2 a titer of 128, 3 a titer of 256, and 2 a titer of 512.

It was not possible to interview the individuals with high titers of antibodies against *C. burnetii* or to obtain information with regard to illness. The plant physicians were unaware of the occurrence of an epidemic or of an unusual number of cases of unexplained illness. Analyses of the specific work performed by those with elevated antibody titers did not suggest a correlation with any particular job or department in the plants.

Minnesota: packinghouse workers—From November, 1947, to January, 1948, 150 serum specimens were received from a large meat packing plant in Austin, Minn. The sera were obtained from employees who came to the plant dispensary for first aid and for various medical complaints. Specimens were collected only from those employees who actually handled meat and meat products within the plant. All but 6 were white males between 20 and 61 years of age. One-third of the group had been employed at the plant for more than 15 years each, and 90 per cent of the group had been employed there for more than 5 years. In contrast with the results among packinghouse workers in Fort Worth, only one serum (0.7 per cent) in the Minnesota series exhibited complement-fixing antibodies with *C. burnetii* antigen, and then only in a titer of 8 (Table 1).

Amarillo: Serological laboratory—In August, 1947, 175 serum specimens were obtained from the Amarillo (Texas) City Health Department after routine serological tests for syphilis had been performed. Most of the sera were obtained from adult white males but the specific age, sex, and racial composition of the group was not available.

Fourteen sera (7.9 per cent) exhibited titers of 8 or more (Table 1). Both of the individuals with high titers (64 and 1,024) were subsequently found to have been ill with Q fever during the stockyard epidemic of March, 1946.[8] Histories of illness were not available from

the other 12 individuals with titers of 8 or more.

Dallas: serological laboratory—During July, 1947, 1,033 consecutive serum specimens were obtained from the serological laboratory at Parkland Hospital, Dallas. All sera were originally submitted for serological tests for syphilis. Approximately 60 per cent of the sera were obtained from the venereal disease clinic and the remainder from inpatients, prospective blood donors, and patients attending other clinics at the hospital. Almost all persons were adults, 43 per cent were male, 57 per cent female, 33 per cent were white, and 67 per cent were Negroes.

One hundred and five sera (10.2 per cent) were found to have complement-fixing antibody titers of 8 or more against *C. burnetii* (Table 1). However, only 11 sera had titers of 32 or more and only 4 had titers of 64; none had titers in excess of 64. The sex and racial distribution of those with titers of 8 or more was the same as for the series as a whole. The clinic or hospital records of these patients were reviewed. Several gave a history of pneumonia. No clear evidence of an illness which might have been Q fever was obtained, but the records were considered inadequate for the purpose.

Boston: serological laboratory—During October and November, 1947, 965 sera were received from the Wassermann Laboratory of the Massachusetts State Department of Health and were tested for complement-fixing antibodies against *C. burnetii*. These blood samples had been submitted from various sources for routine serological tests for syphilis. Almost all were from adults, 64 per cent were from females, and 98 per cent were from white persons.

Eleven of the 965 sera (1.1 per cent) contained antibodies for *C. burnetii* in a titer of 8 or more; the titer was 8 in one instance, 16 in 8, 32 in 1, and 64 in 1 (Table 1). The sex and racial distribution of these 11 persons conformed to the distribution in the series as a whole. A questionnaire inquiring into occupation, history of "virus" pneumonia, and service in the Mediterranean area during World War II was answered by 7 of the 11 positive reactors. One whose serum had a titer of 32 had "virus" pneumonia in 1943; another with a serum titer of 16 had pneumonia in the winter of 1947. The individual whose serum showed a titer of 64 denied any illness in the past 2 years.

Dallas: blood donors—Because of the high incidence of positive reactors with both *C. burnetii* and syphilitic antigens in the first Dallas series, another series of different composition was obtained. From December, 1947, to March, 1948, consecutive samples of blood were obtained from prospective blood donors, the samples being submitted for routine serological tests for syphilis. (The latter were performed in the same laboratory as the first Dallas series.) A total of 798 blood samples were obtained. Two-thirds of the donors were white, and one-third colored; 80 per cent were males and 20 per cent females.

Seventeen (2.1 per cent) of this group had complement-fixing antibodies; 9 had a titer of 8, and 8 a titer of 16 (Table 1). The racial and sex distribution for these persons was the same as for the whole group. A history of occupation or of illness was not available.

Dallas: dairy workers—A total of 350 blood samples was obtained during March and April, 1948, from dairy and dairy plant workers in the Dallas area. One hundred and one of these actually lived and worked on dairy farms in close association with dairy cows. All but one were white adults, from 16 to 69 years of age; 87 were males and 14 females. All but 14 per cent had been so employed for more than 1 year; 60 per cent for more than 5 years; and 40

per cent for more than 10 years. In this group, only one individual's serum fixed complement with *C. burnetii* antigen in a dilution of 8 or more; in this person, the titer was 32.

In addition to the farm workers, 249 blood samples were secured from employees of dairy plants, the majority of whom were white males. Approximately two-thirds of the total were indoor plant workers engaged in various phases of the pasteurization and packaging of milk and milk products; the remainder were mostly route salesmen. Of this group of 249, 6 (2.4 per cent) reacted positively with *C. burnetii* antigen. Three had a serum titer of 8, 2 a titer of 16, and one a titer of 32. Combining both groups of dairy workers, 7 of 350 (2.0 per cent) reacted positively; the highest titer being 32 in 2 persons (Table 1).

Oregon: serological laboratory — Through the courtesy of Dr. A. W. Frisch it was possible to include the results on 566 specimens submitted to several serological laboratories in Portland, Ore., for routine serological tests for syphilis. Dr. Frisch's technique in testing for antibodies to *C. burnetii* was similar to that used here with 2 exceptions: (1) the serum dilutions were 10, 20, etc., instead of 8, 16, etc., and (2) the Henzerling instead of American (Dyer) strain of *C. burnetii* was used as antigen. The results are recorded in Table 1. Ten of 566 samples (1.8 per cent) reacted positively in a titer of 10 or more. Six had a titer of 10, and 4 a titer of 20. These results are recorded in Table 1, under the columns for titers of 8 and 16 respectively.

SPECIFICITY OF THE SEROLOGICAL TEST

Relation between STS and serum reactivity with C. burnetii—The unexpectedly high (10.2 per cent) frequency of serum reactors to *C. burnetii* antigen among the 1,033 specimens in the original Dallas series prompted further analysis of the data. The results clearly revealed a significant correlation between a positive or doubtful STS and reactivity in the complement-fixation test with *C. burnetii*.

Of the 1,033 sera tested, 38.4 per cent yielded positive (27.1 per cent) or doubtful (11.3 per cent) tests for syphilis. However, in the group of 105 sera yielding positive complement-fixation tests with *C. burnetii* antigen, 60 per cent also had positive or doubtful tests for syphilis. This relationship, expressed according to the titers of rickettsial antibodies, is shown in Table 2. The whole series was then divided into 2 groups according to whether the STS was negative (636 sera) or positive or doubtful (397 sera), and the number and percentage of reactors with the rickettsial antigen calculated (Tables 3 and 4). A fourfold table relating positive and negative reactivity with *C.*

TABLE 2

Dallas Serological Laboratory Series
Number and Per cent of Sera with Positive or Doubtful STS among 105 Positive Reactors with C. burnetii

Serum Titer for *C. burnetii*	Number of Sera	Positive or Doubtful STS	
		Number	Per cent
8	39	19	48.7
16	55	37	67.3
32	7	4	57.1
64	4	3	75.0
Total	105	63	60.0

TABLE 3

Dallas Serological Laboratory Series
Complement-Fixation Titers against C. burnetii among 636 Sera with Negative STS

Titer	No. of Sera	Per cent	Total Per cent Positive
AC	38	6.0	
<8	556	87.4	
8	20	3.1	
16	18	2.8	6.6
32	3	0.5	
64	1	0.2	
Total	636	100.0	

TABLE 4

Dallas Serological Laboratory Series Complement-Fixation Titers against C. burnetii among 397 Sera with Positive or Doubtful STS

Titer	No. of Sera	Per cent	Total Per cent Positive
AC	40	10.1	
<8	294	74.1	
8	19	4.8	
16	37	9.3	15.9
32	4	1.0	
64	3	0.8	
Total	397	100.1	

burnetii with the results of the tests for syphilis, in the whole series, yielded a chi square value of 23 and the highly significant P value of less than 0.01.

In the Fort Worth series 4.0 per cent had positive or doubtful STS; among the 114 sera in this series which reacted positively with *C. burnetii,* 6 (5.4 per cent) also had positive or doubtful STS. The rickettsial complement-fixation titers among these 6 individuals with positive or doubtful STS were: 8 in 2 instances, 16 in 3, and 512 in 1. The relationship between the 2 serologic tests could be fortuitous and the P value was not statistically significant.

In the Amarillo series, 5.7 per cent of the sera yielded positive or doubtful results in the STS. Among the 14 sera which fixed complement in the presence of the rickettsial antigen, 2 (14.3 per cent) also had positive STS. The titers for *C. burnetii* in both of these sera were 16. The series is too small for statistical analysis although the results suggest more than a coincidental relationship between the two serologic tests.

Among the 101 specimens from dairy farmers in the Dallas milk shed, the only serum which reacted positively with *C. burnetii* (titer 32) also yielded a doubtful reaction in the serologic tests for syphilis. In all of the other series studied, the relationship between reactivity with syphilitic antigens and the rickettsial antigen could be explained by chance association. Likewise, statistical analysis of all series combined (excluding the original Dallas series) yielded a P value which was not significant.

Reactions with normal yolk-sac antigen—The possibility was considered that some of the sera which reacted in the presence of *C. burnetii* yolk-sac antigen might also fix complement in the presence of normal, uninfected yolk sacs. Accordingly an antigen was obtained from Dr. Herald R. Cox consisting of the yolk sacs of normal embryonated hen's eggs prepared by the same technique as the rickettsial yolk-sac antigens. Almost all sera which reacted in a titer of 8 or more with rickettsial antigen in the "screen" test were again tested with normal yolk-sac antigen and with *C. burnetii* antigen. In no instance was a positive reaction encountered with normal yolk-sac antigen.

Effect of temperature of inactivation—In further attempts to determine the specificity, or lack of specificity, of serological reactions with *C. burnetii,* a number of tests were performed at various temperatures of inactivation of the sera. Inactivation was carried out at 56° C. for 10 minutes and at 65° C. for 15 minutes on sera which in the usual tests reacted with both syphilitic and rickettsial antigens. There were no significant differences in the rickettsial complement-fixation titers at different temperatures of inactivation, nor was complement-fixation demonstrated with the normal yolk-sac antigen under these circumstances.

Reproducibility of results—Sera reacting positively with *C. burnetii* antigen were retested at least once and in many instances several times. Titers tended to fall off, and the sera to become anti-complementary, with repeated thawing and freezing incidental to storage and retesting. The results of repeated tests, however, conformed to the usual reproducibility of most quan-

titative complement-fixation tests. Unusually discrepant results were not encountered. Two different lots of antigen were employed and many of the positive sera were tested with both antigens, with similar results. A group of positive and negative sera were also tested in the laboratory of Dr. Cox with results corresponding well with those obtained in this laboratory.

Persistence of antibodies — Complement-fixing antibodies persist for many months following proved natural infection with Q fever.[17] It was, therefore, of interest to determine the antibody titers on serum specimens obtained several months after the original samples. Nonspecific reactivity might be expected to fluctuate or disappear while true antibody might be expected to persist or decline in titer slowly. Second blood samples were obtained in 42 instances from Fort Worth meat packers 4 months after the original bleedings; in all cases a titer of 8 or more was demonstrated. A comparison of the titers of original and second specimens is shown in Table 5. A distinction is made between a titer of 0, indicating a complete absence of complement-fixation in a final serum dilution of 8, and a titer of <8, indicating some fixation of complement but less than a 3+ reading. With a few exceptions the titers declined in the 4 months interval. However, the falls in titer were moderate and uniform at all initial levels. Of 42 persons, with titers of 8 or more, 23 still had titers of 8 or more 4 months later.

In the series from the Boston laboratory, second samples of blood were obtained from 3 individuals, 1 month, 2 months, and 6 months after the original specimens. Two with original titers of 16 still had titers of 16, 2 and 6 months later; while a third with an original titer of 64 had a titer of 32, 1 month later. One of the positive sera was originally also positive in the serologic test for syphilis. The second specimen from this subject, while exhibiting the same titer with *C. burnetii* antigen, was negative in the test for syphilis.

Hospital patients with suspected Q fever and miscellaneous diseases—Acute and convalescent phase (3–4 weeks after onset) blood specimens were obtained from 22 patients suspected of having Q fever. Seven patients had pulmonary infiltrations without evidence of bacterial pneumonia. The remainder were sporadic cases of acute febrile illnesses in which the usual studies did not establish a specific diagnosis. In addition, acute and convalescent blood was obtained from 2 cases of infectious mononucleosis. Single blood samples were also obtained from 22 cases of lymphopathia venereum. Complement-fixation tests with *C. burnetii* antigen were negative in all instances, with one exception:

A 20 year old male white college student with previous Army service in Korea was hospitalized with fever and pulmonary infiltration. Malaria was proved by examination of blood smears. On appropriate antimalarial chemotherapy, fever and the pulmonary lesion disap-

TABLE 5

Complement-Fixing Antibodies against C. burnetii in Fort Worth Meat Packers
Comparison of Titers in May, 1947, and September, 1947

Titers in September, 1947	Titers in May, 1947: 8	16	32	64	128	256	512	Total
0	1	3	..	..	..	..	..	4
<8	7	6	1	1	..	..	..	15
8	..	1	..	1	..	..	..	2
16	1	3	2	2	..	..	..	8
32	..	3	1	2	..	..	..	6
64	..	..	..	2	1	1	1	5
128	..	..	..	..	..	1	1	2
Total	9	16	4	8	1	2	2	42

peared within a week. Blood serum taken 5 days after onset was anticomplementary; the STS at this time was negative. Blood serum taken 12 days after onset fixed complement with *C. burnetii* in a titer of 16, but another sample taken 6 weeks after onset had a titer of less than 8. It is difficult to evaluate the significance of these serological reactions. The relatively low titer and its rapid fall suggested a nonspecific reaction, possibly related to malaria.

In the original Dallas series were included the results of complement-fixation tests on sera of 129 hospitalized patients. The single blood samples available were obtained, in general, within a few days after admission to the hospital. These patients, representing consecutive admissions to all services of a general hospital, suffered from a wide variety of illnesses. Approximately one-third had acute or chronic infections and many were febrile at the time blood was drawn. No evident correlation was found between the diagnosis established during hospitalization and the complement-fixation titer against *C. burnetii,* with the exception, already mentioned in this series, of the association between positive STS and reactivity with the rickettsial antigen.

DISCUSSION

A considerable body of evidence attests the diagnostic significance of a rising titer of complement-fixing antibodies for *C. burnetii* following an illness. Such antibody responses have been demonstrated following illness proved to be Q fever by recovery of the rickettsiae from the bloodstream.[2, 8] It is also established that such antibodies persist for prolonged periods of time.[16, 17]

On the other hand, there are few data by which can be assessed the specificity and diagnostic significance of complement-fixation with *C. burnetii* antigen of single serum specimens obtained without knowledge of the clinical history, from presumably well persons. To our knowledge, no large serological surveys employing this test have been recorded. Cross-reactions with other rickettsial antibodies do not occur in Q fever,[16] but systematic studies of possible nonspecific reactions or cross-reactions with other diseases have not come to our attention. Moreover, the data are not available which would permit one to regard any particular serum titer as being significant of a previous attack of Q fever.

In the original Dallas series the incidence of complement-fixing antibodies to *C. burnetii* was 15.9 per cent among persons with positive or doubtful serologic tests for syphilis and 6.6 per cent among those with negative tests for syphilis. Since this difference was not likely to arise by chance, some other explanation must be sought. Possibilities to be considered include: (1) false positive serologic tests for syphilis occurred in the presence of antibodies for *C. burnetii;* (2) some factor of selection in the series, such that *C. burnetii* antibodies were more common in persons who also had syphilis; and (3) nonspecific complement-fixation occurring with *C. burnetii* yolk-sac antigen in the presence of syphilis.

The occurrence of false positive serologic tests for syphilis in persons with complement-fixing antibodies for *C. burnetii* seems unlikely. Three-fourths of the 105 persons with rickettsial antibodies were attending a venereal disease clinic. In almost all instances the diagnosis of syphilis was well established. Most patients had been seen originally with primary or secondary syphilis; several had neurosyphilis; and in 9 instances Kahn titers of 64 or more units were present at the time of this study. Available evidence indicates, therefore, that most of these subjects had syphilis and not false positive serologic tests for syphilis.

That the observed relationship between serologic tests for syphilis and

complement-fixation with *C. burnetii* was due to some factor of selection in the group studied, cannot be supported or denied with assurance. The race and sex distribution of the *C. burnetii* reactors was the same as for the group as a whole. Most of them were urban dwellers. The females worked most often as domestics, the males as unskilled laborers. Considering the clientele of the clinic it seems reasonable to believe that positive and negative reactors to *C. burnetii* antigen as well as those who had positive or negative serologic tests for syphilis all came from the same general environment and engaged in the same occupations. Specific data to substantiate these assumptions are not available.

The possibility of nonspecific complement-fixation with *C. burnetii* antigen in sera with positive or doubtful serologic tests for syphilis should receive serious consideration. Previous studies have indicated that other yolk-sac antigens may also fix complement with syphilitic sera.[20, 21] The present results cannot be explained satisfactorily, but they raise a question with regard to the specificity of this test which can only be settled by further investigation.

If it is assumed that the presence of complement-fixing antibodies for *C. burnetii* indicates previous infection with this organism one must conclude that this survey disclosed a considerable number of otherwise unrecognized cases of Q fever. This assumption seems particularly strong in connection with the results obtained in the packinghouse workers at Fort Worth. Not only was the total incidence of positive serological reactions high (8 per cent), but the incidence of high titers was also considerable (2.3 per cent had titers of 32 or more). The persistence of the antibodies for a period of 4 months further supports the belief that they indeed represented infections with Q fever. The fact that an epidemic was not recognized may be explained on the assumption that the illnesses were sporadic, that they masqueraded under more banal clinical labels, or that they were subclinical. All of these possibilities are known to occur with Q fever.

The serological results obtained among meat packers at Fort Worth thus represent the third instance in this country in which Q fever has been identified in packinghouse workers. However, as Shepard had already pointed out, the infectious agent must reside rarely, not commonly, in such an environment.[9] Among the Minnesota packinghouse workers the incidence of positive reactors for *C. burnetii* was negligible, and yet these workers had had contact with many thousands of animals over the course of years.

Unlike recent experiences in Los Angeles County, the incidence of rickettsial antibodies among dairy workers in the Dallas area was not higher than in a sample of the general population. Many of the persons studied had had years of close association with dairy cattle. As with meat packers, one must conclude that the epidemiological association between Q fever and occupation or environment seems to be an intermittent, and not a constantly operating phenomenon.

In one of the studies of the Los Angeles outbreak recently reported, data are presented indicating that 1.8 per cent of a group of sera with negative STS from individuals residing in the milk shed area exhibited complement-fixing rickettsial antibodies in a titer of 8 or 16.[11] In the present study, a similar incidence of antibodies in low titer was also found in Dallas, Boston, and Oregon, areas where Q fever has not been recognized clinically. In Texas (Dallas, Amarillo, and Fort Worth) the incidence of antibodies for *C. burnetii* appears to be higher than elsewhere. These data may suggest that Q fever

may be widely distributed throughout the United States.

A question has arisen in recent publications as to the selection of the proper strain of *C. burnetii* for use as an antigen in complement-fixation tests. Patients infected in Italy with Q fever developed complement-fixing antibodies to the Italian (Henzerling) strain but not to the American (Dyer) strain.[2] The latter has been said to be a less sensitive antigen than the former.[22] Immunized guinea pigs developed an early rise in titer to the Henzerling strain, and a delayed response to the Dyer strain, but 2 months later the titers became comparable. Similarly, human beings immunized with vaccines prepared with these strains exhibited better antibody responses with the Henzerling than with the Dyer strains.[23] It must be pointed out however, that successful, and diagnostically useful, complement-fixation tests were performed with the Dyer strain in the investigation of the Amarillo epidemic,[8] and in a follow-up study of this epidemic, carried out at this laboratory, dealing with the persistence of antibodies.[17] The problem of the choice of antigens cannot be considered settled. The present study was conducted entirely with the use of the Dyer strain and no comparisons with the 2 antigens could be made. If the results of the studies mentioned above are applicable to the present circumstances it may be implied that an even greater number of sera would have fixed complement had the Henzerling strain been employed.

SUMMARY

1. Complement-fixation tests were performed in 5,470 sera using yolk-sac antigen of *C. burnetii* (American Nine Mile strain). The sera were obtained from persons residing in Massachusetts, Minnesota, Oregon, and Texas. Sera were obtained from meat packers in Fort Worth, Tex., and Austin, Minn., and from dairy workers in the Dallas area.

2. Sporadic instances of complement-fixation, which may indicate Q fever, were found in sera from all geographic areas included in the study, suggesting that Q fever may occur in low incidence throughout the country. Evidence for its occurrence in appreciable numbers among packinghouse workers in Fort Worth was presented. The evidence also suggested that residents of the southwestern part of the United States may have a higher incidence of complement-fixing antibodies with *C. burnetii* than in other areas of the country.

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We also wish to acknowledge the generous assistance of Dr. Herald R. Cox in supplying the antigens used in this study and in testing selected sera in his laboratory.

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The Epidemiology of Accidents*

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EXISTING rates for deaths from accidents and violence remain numerically at almost the identical level of 1900, 88 per 100,000 population in 1900 and 88 in 1946. The relative position among public health problems is at a higher level,[1] since these conditions have advanced as a cause of death in the United States from sixth place in 1900 to third in 1946.

Industry and various governmental agencies have given much attention to the accidents that occur in the places where men work, in public areas, and in relation to motor cars. Accidents in homes outdistance any other class in the losses they cause, whether judged by deaths, by the permanent defects that follow, or by temporary disability. Like all programs for the prevention of mass disease and injury, that directed toward accidents is necessarily a team effort involving a number of agencies and a variety of disciplines. Although health departments have an obligation in all accident prevention, a better record for home accidents is believed to depend largely upon what health departments do in that field. If home accidents are primarily a public health problem, then that problem is reasonably to be approached in the manner and through the technics that have proved useful for other mass disease problems. This includes first an epidemiologic analysis of the particular situation, an establishment of causes, the development of specific preventive measures directed toward those causes, and finally a periodic evaluation of accomplishment from the program instituted.

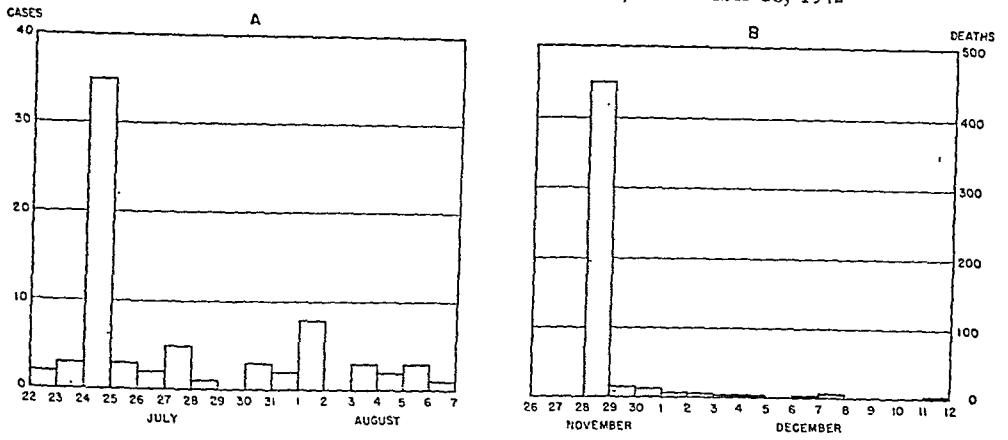
No need exists in these days to trace the way in which the epidemiologic method has extended from its original restriction to the communicable diseases, to a broad application to mass disease of man; to cancer, diabetes, congenital anomalies, and many others. It is not so generally appreciated that injuries, as distinguished from disease, are equally susceptible to this approach, that accidents as a health problem of populations conform to the same biologic laws as do disease processes and regularly evidence a comparable behavior. This is readily indicated by an initial comparison of representative diseases and injuries according to frequency distributions in time, an epidemiologic characteristic of established value in separating one mass disease from another, and in distinguishing kinds of behavior.

MOVEMENTS OF DISEASE AND INJURY ACCORDING TO TIME

The point epidemic is perhaps the most arresting of all distributions in time, that circumstance where a sharp aggregation of cases occurs within a brief interval as the result of a single agent acting during a prescribed and limited time (Figure 1). A circus train[2] backed up to a standpipe in the Pittsburg railroad yards, filled its tanks with untreated river water and some two weeks later typhoid fever exploded

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FIGURE 1—Point Epidemic: (a) Typhoid Fever in a Circus,[2] July 22 to August 6, 1934; (b) Cocoanut Grove Nightclub Fire, Boston,[3] November 28, 1942

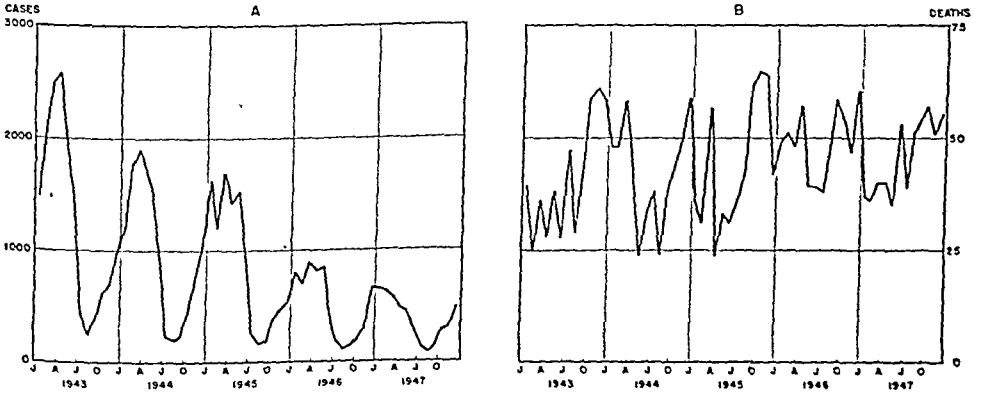


sharply as the troupe played Dayton, Ohio. The deaths from accidents which occurred in the 1942 Cocoanut Grove night club fire in Boston[3] were of the same order, the result of a single causative agent striking once and leading to an explosive outbreak with subsequent scattered deaths due to a more resistant host or a lesser activity of the agent. The result of a Florida hurricane would serve equally well in illustration.

The classical outbreak of amebic dysentery[4] in 1933 in a Chicago hotel was characterized by three successive peaks in incidence, a cyclic distribution caused by periodic contamination of the water supply. A similar cyclic distribution of injuries occurred among soldiers of an infantry division in France in 1944, when three successive and distinctive outbreaks of cold injury and trench foot[5] followed major military activities and increased exposure to cold, with the central and major event readily identified as a consequence of the Battle of the Bulge.

Other diseases are characterized by a non-fluctuating endemic prevalence of which tuberculosis[6] furnishes a good example, case rates for the United States during the years 1943–1947 adhering closely to a level of about 90 per 100,000 population. Certain classes of accidents conform to the same pattern,

FIGURE 2—Annual Seasonal Incidence: (a) Scarlet Fever,[3] Massachusetts, by Months, 1943–1947; (b) Motor Vehicle Accidents,[3] Massachusetts, by Months, 1943–1947



notably home accidents,[7] where year after year the death rates show little variation, sometimes a few more than 25 per 100,000 persons, and uncommonly a few less.

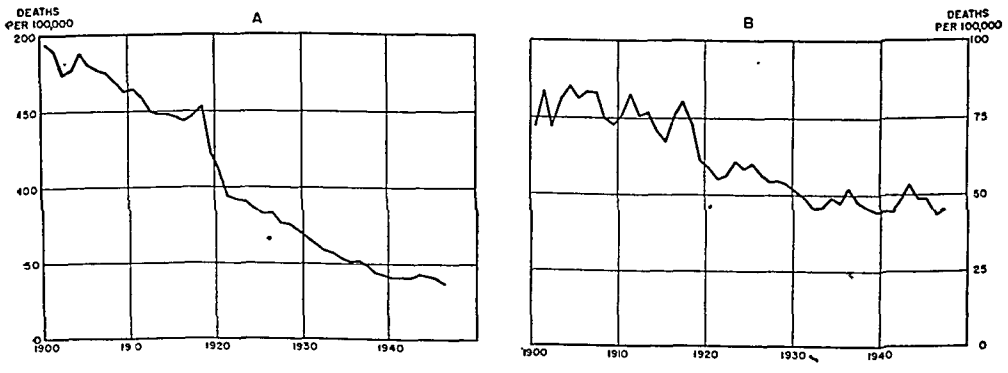
A well defined annual seasonal variation in frequency distribution is also a common characteristic of many communicable diseases. Scarlet fever in Massachusetts[3] regularly attains a maximum frequency in the winter months of January and February (Figure 2). An equally regular annual periodicity is shown by motor vehicle accidents[3] for the same state and for the same years illustrated, again a winter prevalence except that the peak develops somewhat earlier, in November and December.

The long-term trend in frequency distributions by time is another common method of evaluating the movements of disease, and a method that often serves importantly in determining the effectiveness of preventive measures that have been introduced. Injuries show typical trends (Figure 3), as definite as those of diseases, sometimes with frequency distributions maintained at a more or less fixed level, sometimes with a well defined tendency to move upward or downward. The downward trend in deaths from tuberculosis[8] in the United States during the present century is universally known, from close to 200 deaths per 100,000 population for the registration area of 1900 to a level consistently below 50 for the same region in the years since 1937. The frequency curve for deaths from accidents other than motor vehicle accidents[9] during the same period and for the same area was at a more or less constant level of about 85 per 100,000 during the first 10 years of the century; thereafter with a significant downward movement; with the past 15 years showing little variation although the level is now at about 50. Accidents as representative of the class of injuries evidently follow as distinctive movements in time as do diseases. It remains to determine whether the same biologic laws that govern occurrence and causation also act in respect to injuries.

ACCIDENTS AS AN ECOLOGIC PROBLEM

Irrespective of whether disease and injury be looked upon as affecting the individual, or as the mass effect exerted upon a community, causation is to be interpreted as something more than the agent directly involved, a germ in infectious disease or the loose board in a home accident. Rather it is a combination of forces from at least three sources, which are the host—and man is the host of principal interest—the agent itself, and the environment in which host and agent find themselves. Neither one nor

FIGURE 3—Long-Term Trend: (a) Deaths from Tuberculosis.[8] U. S. Registration Area of 1900, 1900–1946; (b) Deaths from Accidents, excluding Motor Vehicle,[9] U. S. Registration Area of 1900, 1900–1947



the other invariably exerts the principal effect, which provides the assumption that similar disease phenomena can arise from dissimilar causes.

An established and satisfactory equilibrium or adjustment between man and his environment leads to the situation called health. A significant disturbance of that equilibrium is the basis for disease or injury. The disturbance may occur either through principal action of the agent, because of a characteristic of the host, or as a function of environment, but most often through some combination of the three. These are the fundamental factors in causation. The mechanisms involved—how they interact to the eventual production of a pathologic condition, in pathogenesis of individual disease, or in the genesis of epidemics—is also a practical consideration, but the essential question is what are the basic causes of the disease or injury. This is true because remedy must be suited to the whole of cause, as it lies in host, agent, and environment. Can these broad biologic principles be fitted to an interpretation of injuries, as they have been to disease, whether communicable or non-communicable?

HOST FACTORS IN ACCIDENTS

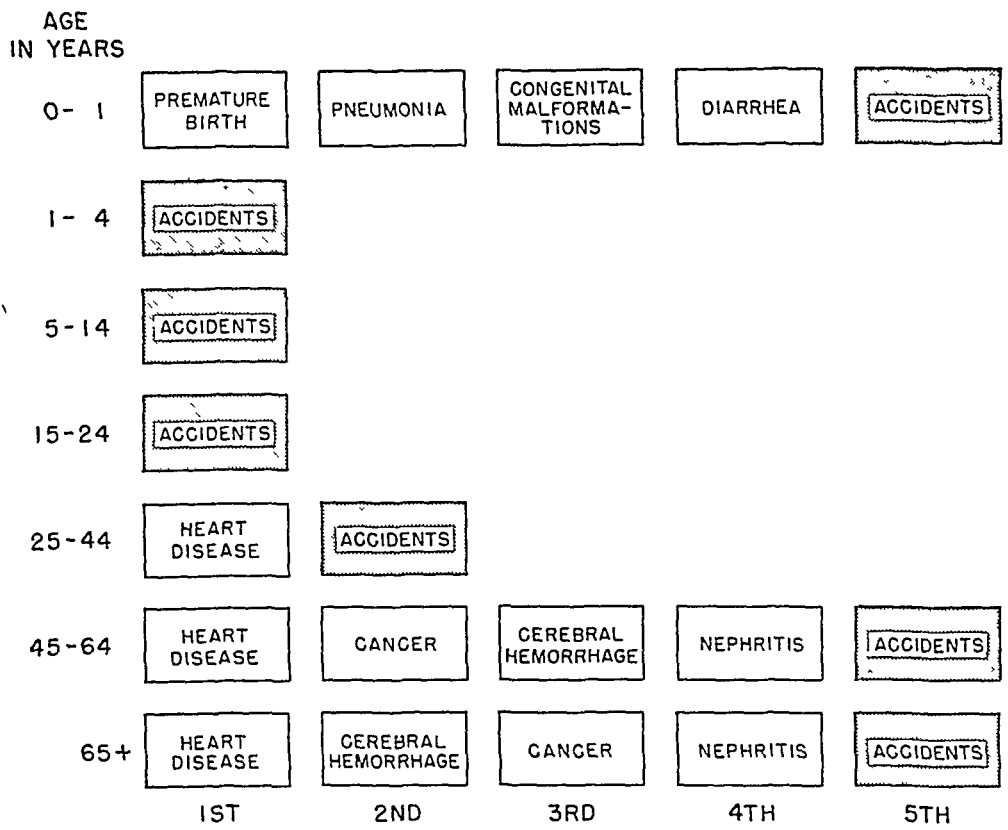
Because the object or agent which directly gives rise to an accident is so evident—the faulty pavement, the scalding water, the unguarded poison—the common tendency to consider only that factor in a causative relation is readily understandable. An enveloping darkness, or rainy weather, or a crowded tortuous thoroughfare are also not so difficult to interpret as contributing to accidents. But the people who get hurt, they are only the poor victims; and yet when the question is examined, probably more causes of accidents lie within what we choose to call host factors, within people themselves, than in any other of the three parts of the triad which explain disease and injury. The host patterns of persons who suffer from accidents are of the same general order as those long recognized in many disease processes.

Age—Deaths from home accidents in the United States in 1945[7] were most frequent among the very old, past 65 years, and among the very young, aged 0 to 5 years, with the loss of life far less during the active periods of life, 5 to 65 years, when conceivably the opportunity for accidents is greater and the risk much enhanced. The distribution of deaths by age is so like that for deaths from pneumonia and influenza of the same region and for the same year, in the United States in 1945,[10] that the two are almost interchangeable. However, the whole significance of age as a host factor is not revealed by the absolute weight of accidents at various ages, for the situation is altered when the interpretation is in terms of relative importance. While the death rates for accidents are greatest at the extremes of life, the problem centers among children and young adults[10] when considered according to rank among causes of death (Figure 4).

Sex—Difference in attack rate by sex is another characteristic useful in distinguishing community diseases; from the outstanding predominance of males over females provided by tularemia and undulant fever, where other features than sex evidently enter, to the regular although less marked excess of males that characterizes mumps[3] and other diseases of childhood. The spread between death rates for males and females for accidents of all forms[9] is noteworthy, and particularly so when selected types of accidents are compared. Fatal accidental injury through falls is more than twofold greater for females than males at age 65 years or more, a reversal of the experience during childhood and for young adults.

Race—Racial differences in attack

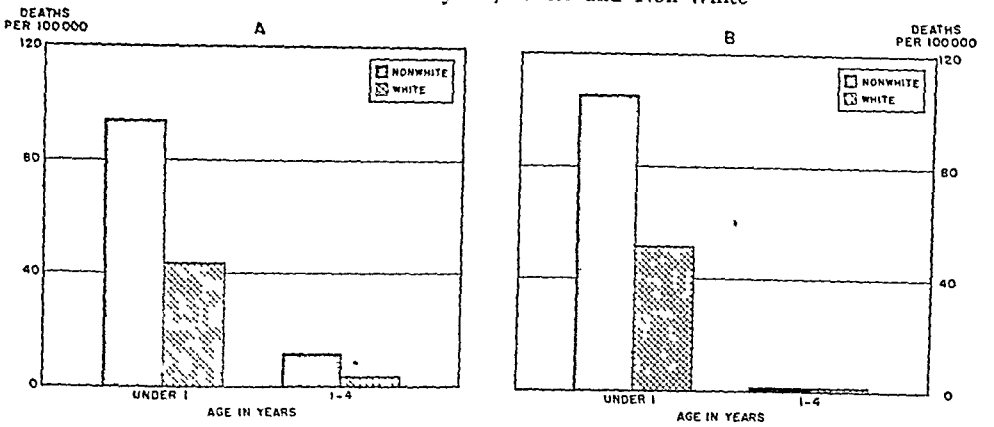
FIGURE 4—Principal Causes of Death,[10] by Age, United States, 1945



rates at earlier ages in a disease such as whooping cough[10] are well known, but they are no more striking than those noted for accidental suffocation[11] where the frequency is twice as great for colored children under 1 year as for white infants (Figure 5).

Genetic Inherent Susceptibility—The demonstrated differences in liability to accidents among populations separated according to the gross qualities of age, sex, and race are further confirmed by attention to any number of other features which enter into the constitution of the host as a whole, deficiencies in sight and hearing, and in mental stability to mention a few. Accident proneness is a host factor related to social attitudes and psychologic differences, and yet apparently is as inborn and fixed as any other inherited characteristic. The subsequent experience of motor car drivers who had no accidents in the first year of driving was compared by Farmer and Chambers[12] with those who had three or more. The accident prone drivers continued regularly to have more accidents during the next four years, a relation that held despite weather and other environmental conditions which introduced expected fluctuations in the frequency curve. Accident proneness is no unique function of motor accidents but enters into accidents of all types, although less well explored for such important groups of accidental injuries as those that occur in the home. The inherent differences among people in this attribute are as distinct as those underlying the excess incidence of acute upper respiratory infections[5] among white as compared with

FIGURE 5—Racial Distributions: (a) Deaths from Whooping Cough,[10] United States, 1945; (b) Deaths from Accidental Mechanical Suffocation[11] United States, 1939–1941; Children under 5 years, White and Non-White



colored troops, a phenomenon recorded in World War II, and in similar relation whether the endemic common cold or epidemic influenza prevailed.

AGENT

The agents concerned with injuries and with accidents, like those of disease, are variously of physical, chemical, and biologic nature. The importance of the several classes is greater in some types of accident than in others and the kind of agent within a class is potentially great. Information about the agents concerned in accidents is none too satisfying because of the common failure to distinguish mechanism from actual agent.

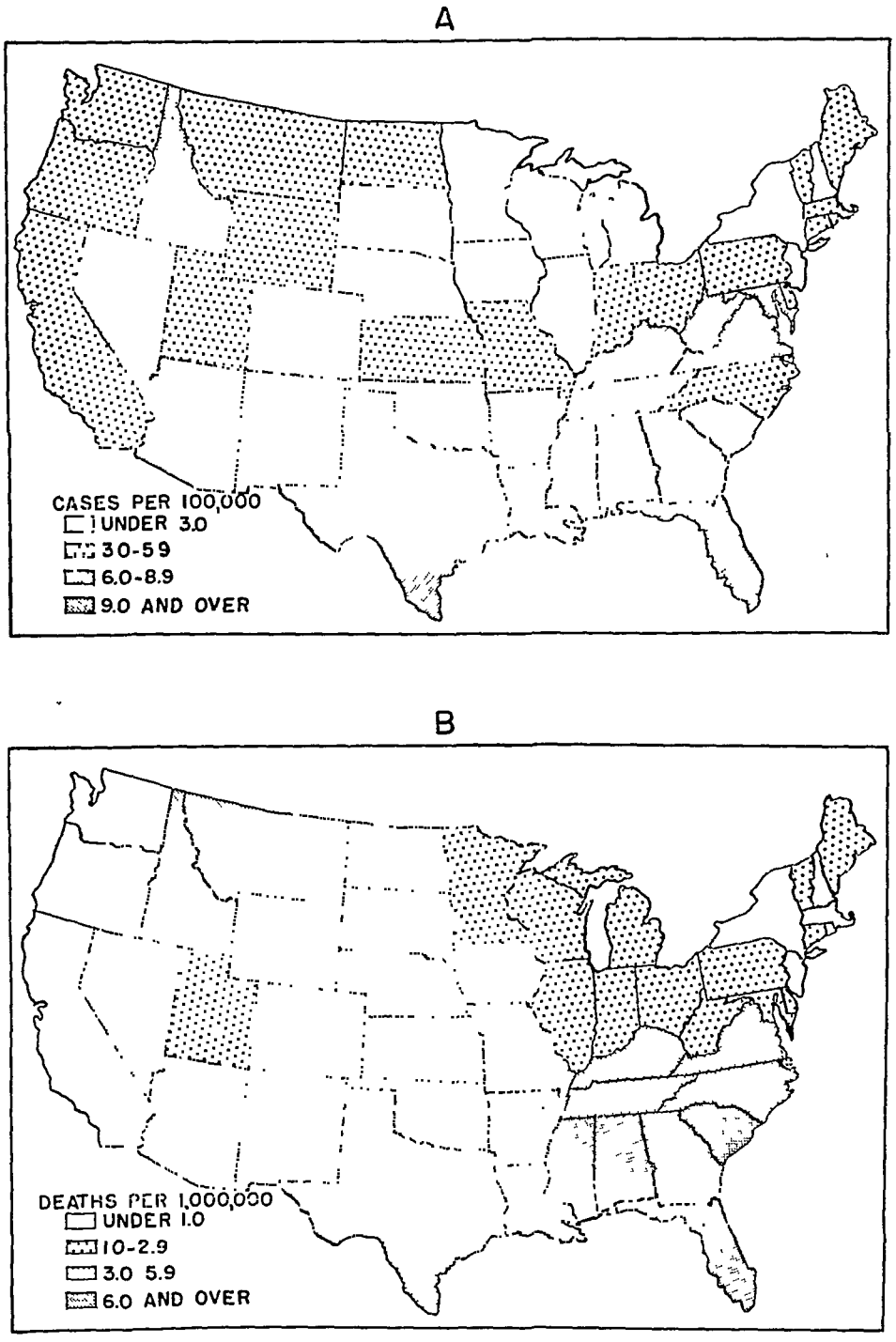
The causative factors in accidents have been seen to reside in agent, in the host, and in the environment. The mechanism of accident production is the process by which the three components interact to produce a result, the accident; it is not the cause of the accident. Kinds of mechanism serve to advantage in classifying accidents by type, with a particular event ascribed to cutting or piercing, to collision, or to crushing, and yet the agent in all three instances is a glass panelled door. Conversely, a fall may be related to such dissimilar agents as a faulty ladder, a playful pup, or a misplaced handbag.

The significance of agents in the problems of causation becomes more apparent when the kind and concentration are related to the same fundamental features of time-place-person relationship that is the basis of the epidemiologic method. This may be illustrated (Figure 6) by the geographical distribution of cases of typhoid fever[13] and of deaths from lightning,[14] with the dominant "reservoirs of infection" and factor of community dosage as evident for the one condition as for the other.

ENVIRONMENT

The limited perspective with which environment is commonly viewed is open to improvement by considering it as composed of three major elements, the physical, the biologic and the socio-economic, a concept elsewhere discussed in detail.[15] The physical environment has to do with matters of climate and weather, of season and topographical affairs, with soil and terrain, and the other physical features of the world where man lives. The biologic component of the environment can be taken to include the universe of living things that surrounds man, all else than man himself; while the socio-economic part of environment is that which comes into play through association of man with his fellow man. Environment so con-

FIGURE 6—Geographical Distribution: (a) Cases of Typhoid and Paratyphoid Fever,[13] United States, 1940–1944; (b) Deaths from Lightning,[14] United States, 1940–1944



sidered exerts an influence on disease sometimes through direct action on host or on agent, and sometimes on the mechanisms which bring host and agent

together or determine their interaction. The results of environmental influences are to be measured by the character of the disease process that results, by the extent and nature of the frequency distributions that follow, and often by both. The three factors of environment are now considered as they act in determining distributions of accidents.

PHYSICAL ENVIRONMENT

The geographic differences in frequency of deaths from accidents of all forms are well recorded in the United States over many years; the highest rates are in the far West and in Florida, the lowest in the Middle Atlantic and New England areas.[7] The general pattern by no means holds for the various classes of accidents, notably home accidents, nor does the gross differentiation by states permit the individual community to judge its particular problem logically. This has been recognized to the extent that some cities determine the frequency of accidents by political subdivisions such as wards or census tracts, and states like Tennessee[7] and Kansas[21] have effected divisions by counties. Further division can be made according to classes of accidents, for example, those that occur in the home or in association with motor vehicles.

The contrasting frequency of diphtheria and scarlet fever in the cities of Sao Paulo and Santos in Brazil is a striking example of the effect of climate[16] on disease. The average annual mortality rates per 100,000 in Sao Paulo were for diphtheria 10.8, for scarlet fever 7.6; in Santos, diphtheria 3.1 and scarlet fever 0.3. The two cities only 49 miles apart are climatically wholly distinct since Sao Paulo high in the mountains has a temperate climate, while Santos is on the tropical sea coast. An equally striking effect of temperature is seen in the frequency of cold injury among American troops in France in World War II.[5] As temperatures dropped from November through January, the number of soldiers developing trench foot progressively increased.

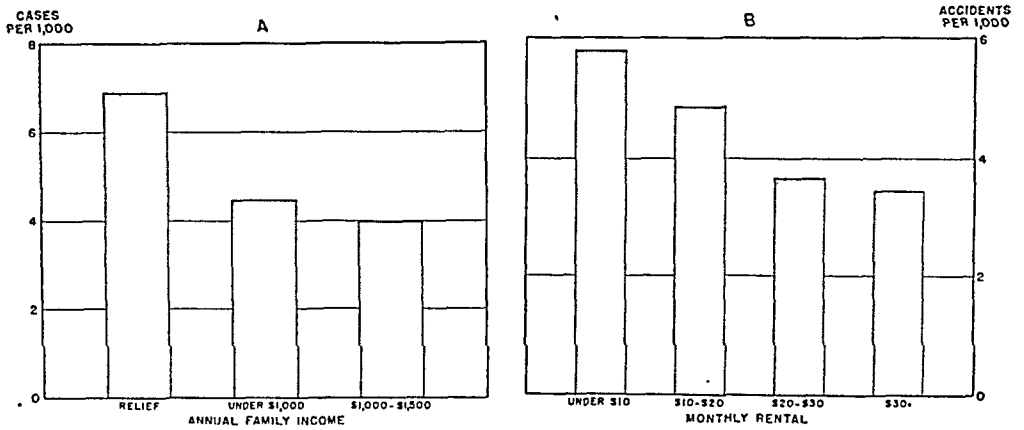
A seasonal effect on injury and accident as striking as any that characterizes a communicable disease can be had by comparison of the distribution curves for cases of poliomyelitis[13] and accidental deaths from drowning[7] in the United States in 1945, the two curves being almost identical. This random choice illustrating a summer prevalence is easily duplicated, for instance by deaths associated with falls at all ages and suffocation of infants aged less than one year, which are typically winter diseases. The examples are sufficient to establish the principle that types of accidents have seasonal variations which can be as regularly recurring and as well marked as those for infectious or other disease processes.

The frequency of ascariasis in a rural area of West Virginia and in rural China is presented as an influence of soil and terrain on the frequency of infestation with an intestinal parasite. The rates for children under 10 years were respectively 58 per cent and 82 per cent. The introduction in West Virginia of the socio-economic factor of shoes being worn as age advances leads to comparative rates of 20 per cent and 63 per cent for those aged 40 years or more. Terrain can likewise act on motor accidents, as seen in a comparison of death rates in Rhode Island and in Arizona, where the regularly maintained ratio is 1:4 although assuredly analysis would show strong effects for socio-economic environment and from host factors, in addition to the character of the countryside.

BIOLOGIC ENVIRONMENT

The biologic factor of environment has a lesser significance in the causation of accidents, compared with the outstanding part it plays in such mass dis-

FIGURE 7—Influence of Socio-economic Environment; (a) Pneumonia,[18] Cases per 100,000, by Annual Family Income, National Health Survey, 1935–1936; (b) Home Accidents,[18] Cases per 100,000, by Monthly Rental, National Health Survey, 1935–1936



eases as malaria and rabies. That the principle holds, that environment in relation to accidents is also to be interpreted in terms of the three components already differentiated, is substantiated by a consideration of such events as the home accidents associated with pets, with poisoning through action of snakes and arthropods, and similar incidents related to the animate things that live with man.

SOCIO-ECONOMIC ENVIRONMENT

Whatever the kind or nature of mass disease or injury, the part exerted by the socio-economic environment is probably the most neglected of any epidemiologic influence, and accidents are not different in this respect from any other causes of damage. Only scattered information can be put together, that arising from the National Health Survey of 1935[17] being most instructive. The quality of housing (Figure 7) as judged by the amount of income or rental paid has been repeatedly demonstrated as an influence on the frequency of both communicable and non-communicable disease. It is not surprising that the same causative factors which act so strongly on the frequency distributions of pneumonia[18] are also a determining influence with accidents.[18]

The demonstrated correlation between disease and occupation, as in tularemia[19] where hunters and housewives are the groups most affected, is in complete agreement with the differences noted for accident rates according to occupation.[7] Deaths per 100,000 for persons engaged in mining, quarrying, oil and gas wells were in 1947 about 170; for construction work and those in agriculture about 50.

The changing frequency in the incidence of the common communicable diseases among rural and urban populations is commonly advanced as a feature of modern disease behavior related to social and economic conditions. It is no more definite than the transition noted for motor accidents.[10] Deaths from this cause were dominantly a feature of urban populations 25 years ago, but the recent shift is of such extent that rural death rates now exceed those of urban areas.

THE EPIDEMIOLOGIC APPROACH TO ACCIDENTS

The idea that injuries as they affect groups of people could be profitably approached through epidemiologic methods grew out of a real and pressing experience in World War II. A type of cold injury, trench foot, involved

thousands of men, and was a major cause of disability and lost man power. The initial inclination was to look upon the cause as cold, which could neither be eliminated nor adequately controlled in an army operating under field conditions. If not cold, then the cause was deficiencies in clothing and equipment. It soon became apparent that other factors were of greater relative moment, the kind of military operations, the terrain through which troops operated, the management of troops, and an intangible host factor called foot discipline. Occupational components of a division were not uniformly affected, for commonly some 94 per cent of cases were among the 27 per cent of riflemen. Two units operating under similar conditions were disproportionately affected, and the explanation was sometimes related to host, sometimes to the agent, and sometimes was found within the environment. The problem of prevention resolved into a determination of the specific factors contributing to cold injury of a particular unit. From knowledge of those factors a specifically directed program of correction was evolved.

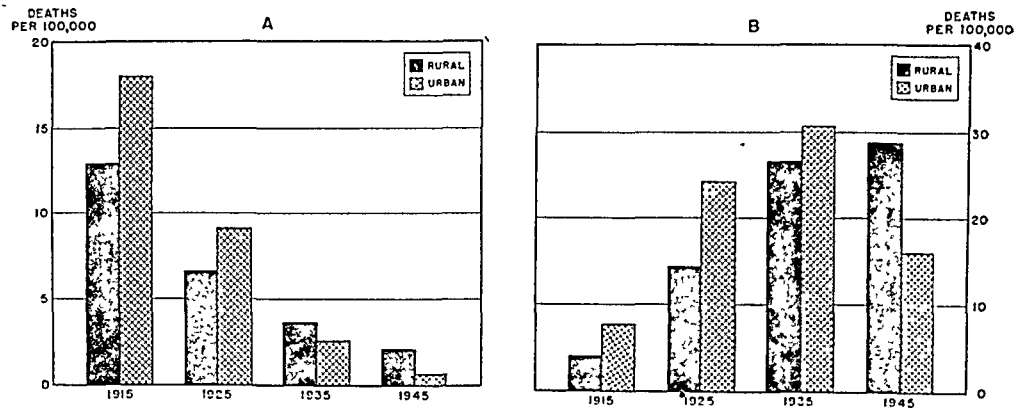
With a return to civilian interests, it seemed reasonable to suppose that accidents as a type of civilian injury could be approached in similar fashion and a study was made of home accidents. The broader presentation given here is advanced in the belief that the method is usefully applicable to accidents generally.

That accidents and disease, as they affect groups of people, so frequently show similar distributions is no reason to assume identical causes; indeed, the expectation is that they are different. The illustrations presented here were purposely drawn from a wide variety of accidents and diseases, to the end of demonstrating that both great classes of morbid conditions of man are governed by broad biologic laws; that in their action on groups of people they are the resultant of the total forces within a universe, of an ecologic entity. An observed behavior is no more a function of all kinds of accident than of all diseases, and conversely a single type of accident, like an individual disease, rarely manifests all the kinds of possible distributions.

Each of the three broad factors in causation has been considered individually to the end of demonstrating principle, but the illustrations themselves, and more particularly the concept of epidemiology as medical ecology, show this to be an over-simplification. All factors are intimately interwoven, each influenced by the other. For a given kind of accident the values are determined by subjecting adequate quantitative data to partial and multiple correlations in search for those conditions of actual importance in the particular situation. Too often the emphasis is on amassing facts with a failure to muster the power that likes in generalization, to develop information from principle or to collect data for a specific purpose and to meet a demonstrated need. A wide range of conditions commonly contributes to the prevalence of an injury. The success of a control program depends on sorting out from the larger volume those that are critically essential. These considerations make epidemiologic analysis a practical approach to an improved understanding of accidents and to a better prevention.

The start is through field investigation, individual case study of the patient, the family group, and the immediate surroundings in which they live. Neither disease nor injury in a community can be effectively prevented or controlled without knowledge of when and under what conditions cases are occurring. The method is fundamentally that so well developed for communicable and other diseases. The nature of the accident is determined, the result evalu-

FIGURE 8—Urban and Rural Distributions: (a) Deaths from Diphtheria,[10] per 100,000 population; (b) Deaths from Motor Vehicle Accidents,[10] per 100,000 population; United States, 1915–1945



ated in terms of death or recovery, of temporary disability or permanent defect. The causes are sought through direct investigation of the site of the accident, of the associated circumstances, and of the person who was injured. A principal difficulty is in unearthing the index case, in case finding, for the system of reporting so useful in the study of communicable disease and some few other conditions, is not available for accidents. Deaths from accidents are reported, but what is needed is something more than a knowledge of fatal accidents.

Death is far from being the sole health cost of accidents,[20] or for that matter of any mass health problem. Estimates suggest that for every death from a home accident, some 150 disabling accidents occur, a ratio that is greater than for any other of the accepted classes of traumatic injury. Patients admitted to hospitals serve as a lead to the group likely to suffer permanent defect from accidental injury, for presumably they are the more seriously injured. The kind of information basically essential to a comprehensive preventive program is that which relates to the bulk of lesser events, the accidents that result in temporary and often minor disability. This is to be obtained most surely through organized survey and special studies in selected areas. Much can be accomplished by incorporating the investigation of accidents into the ordinary activities of health departments where public health nurses and others include a consideration of accidents along with other activities which take them to the homes of people.

An analysis of collected data according to the pattern described is believed helpful in understanding the origin of accidents, since it provides a framework into which endless scattered observations can be fitted. It involves first a recognition of the agent involved, second a determination of the mechanism by which that agent comes into play, and thirdly a definition of cause in terms of combined effect originating from host, agent, and environment.

This is not a complicated but a rational and practical approach to the study of accidents. It is a scheme followed by several health authorities.[21] The National Safety Council[22] has made an analysis of home accidents according to this pattern. The investigation form used by the Kansas State Health Department provides a simple means for acquiring and recording necessary data. The method needs wider application if the problem in the individual community is to be adequately met, for it provides the intelligent and specific information upon which to build a program of prevention.

CONCLUSIONS

Specifically directed prevention based on an understanding of cause has long guided the attack on communicable and other diseases. The technical method is that of focal attack, a concentrated effort on recognized centers of infection and the causes that brought them into being.

The biologic principles that govern disease as a community problem are interpreted as holding equally well for injuries. A pattern for epidemiologic analysis is presented as a means for a better understanding of accidents, and thereby through improved measures of prevention, a lesser cost in death, defect, and disability.

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Southern Branch A.P.H.A. To Meet in Dallas, April 14-16

The Southern Branch of the American Public Health Association will hold its 1949 meeting in Dallas, Tex., as announced, April 14–16 with headquarters in the Baker Hotel. John M. Whitney, M.D., formerly Health Officer of New Orleans, now with the American Red Cross, is President and George A. Denison, M.D., of Birmingham, Ala., is Secretary-Treasurer.

The preliminary program announces sessions that will include discussions of present trends in public health, medical research in public health, the tax dollar in public health, the importance of immediate personnel policy planning, water pollution, nursing for the future, rabies control, statistics in public health, dental caries, nutritional status of southern persons, early detection of cancer, public relations in health services, attracting young physicians into public health; together with special sessions on nutrition, nursing, laboratory, sanitary engineering, statistics and health education.

Bacillus subtilis, an Interfering Organism in the Enterococci Test

GRACE McCORMACK

U. S. Department of the Interior, Fish and Wildlife Service, Branch of Commercial Fisheries, College Park, Md.

IN testing the extent of fecal pollution of water and clam samples, the Enterococci Test of Winter and Sandholzer (*Technological Leaflet No. 2,* Fish and Wildlife Service, U. S. Department of the Interior, 1946) was run in parallel series with the coliform test. The inoculum was 10, 1, and 0.1 ml. of water or clam broth. All of the cultures which gave a positive or partially positive enterococci presumptive test were Gram stained. The results revealed that not all positive presumptive tests are caused by the presence of enterococci. Many times a Gram-positive, rod-shaped microörganism appears as a mixed culture with the enterococci, and sometimes, the color change is caused solely by this organism.

Since this organism appeared to belong to the genus *Lactobacillus,* the cultures were transferred directly to tomato juice agar slants, for further study. Later, differential tests showed that this organism was not a member of the genus *Lactobacillus.* Gram stains of old original cultures showed the presence of many spores, not apparent in a 24 hour culture.

Twenty-five cultures were given differential tests with twelve different sugars. The tests were found to agree in every case. Gelatin was hydrolyzed. Citrates were utilized. Acetylmethylcarbinol and nitrites were produced.

It is evident that the microörganism which interfered with the reliability of the enterococci presumptive test is *Bacillus subtilis.* A stock culture of this organism, as well as one obtained from the American Type Culture Collection, were run in conjunction with the differential tests on the isolated cultures. Similar results were obtained.

It is necessary to run the catalase test in order to differentiate between the enterococci and *B. subtilis.* If the growth of the Gram-positive rod-shaped organism is small, it is very difficult to detect a positive catalase test which is characteristic for *B. subtilis.* Of course, a differentiation can be made by Gram staining the cultures. All cultures were found resistant to large doses of penicillin.

Use of Auxiliary Personnel in Dental Care Programs*

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AT the annual meeting of the Committee on Administrative Practice of the American Public Health Association, held October 9, 1943, the Subcommittee on Medical Care was directed to draft a set of principles expressing the desirable content of a comprehensive program of medical care, the methods of its administration, and the part which public health agencies should take in its operation. The report eventually, by action of the Association on October 4, 1944, became an official statement of the A.P.H.A.[1]

The study was considered but one sector of a comprehensive national health program, namely, medical care. The report states, under recommendation VI "Training and Distribution of Service, Personnel," b, that "The plan should provide for the study of more effective use of auxiliary personnel (such as dental hygienists, nursing aides, and technicians) and should furnish assistance for their training and utilization."

The study of the more effective use of auxiliary personnel for the dental profession was assigned to Nathan Sinai, Edwin F. Daily, and R. M. Walls. This study has not been completed and is not ready to be presented to the committee, hence the material offered here represents the views of the author alone.

According to O'Rourke[2] there are five or six trained auxiliary workers for each physician and approximately two-thirds of such aid for each dentist. At first there was much opposition to the formal training and the registration of nurses. But while there was one nurse to each physician in 1920, in 1940 there were two to each physician. This is but one example of the evolution of auxiliary groups in the medical field. The physician has been wise in delegating so many services to ancillary aides —from the construction and fitting of artificial eyes and limbs to the multitude of laboratory technics.

The dental profession has been very reluctant and slow to accept the services of auxiliary personnel. The "chair assistant" has assisted the dentist for a century and, according to Klein, those who avail themselves of such well trained aides increase their service to the community 25 to 50 per cent, yet today less than one-half of the profession have such assistants. Dentists have been required to spend most of their time meeting the demands for fillings and restorative appliances for adults. Some items have been delegated to specialists, but, as compared with a solution of the whole problem, this delegation has not been significant.

Many dentists or groups of dentists avail themselves of the services of prosthetic laboratory technicians, either working under close supervision or off the premises under no direct professional supervision. This type of auxiliary worker undoubtedly saves the dentist many hours in actual labor, but little

* Presented before a Joint Session of the Dental Health and Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

of this time helps to produce more chair hours because it is rare that a dentist who can otherwise fill his chair-time hours will spend such time in his prosthetic laboratory, and so such work is done during the evening. It can truthfully be said that the use of the laboratory technician as an auxiliary worker does not make more chair-time available so that more patients may be served by the dentists.

The only auxiliary operator in the dental field that has legal status is the hygienist, and the tumult that raged within the profession at the time of the conception of this new idea may still be heard each time that a state attempts to amend its laws to permit the licensing of hygienists. In the first decade of the 20th century, Dr. D. D. Smith of Philadelphia, propounded and demonstrated some of the potentialities of dentistry as a health service. Dr. Alfred C. Fones, of Bridgeport, Conn., was so impressed with the work of Dr. Smith that he conceived the idea that the subject of oral health was of sufficient importance to warrant the training of individuals who would devote their chief energies to dental prophylaxis and dissemination of information to the public, through the schools, in regard to the value of a clean and properly functioning oral cavity to personal health. As a result of Dr. Fones's indefatigable efforts, a school for dental hygienists, with a faculty which has probably not been equalled since, was established in Bridgeport in 1913. Since that time the dental hygienist has been licensed by 38 states, and almost without exception has become recognized as an important ancillary to modern dental health service, yet they are found in only 4 per cent of dental offices. This auxiliary operator, without proving a threat to the established form of dental practice, has so conclusively demonstrated her worth to both institutional service and private practice that she has become as essential to modern dentistry as the registered nurse is to modern medicine. In private practice the great majority of her patients are adults; it would be of great significance if the time that is saved by her employer were spent in rendering service to children.

How do our educational facilities measure up to the problem of supplying sufficient graduates in dental surgery to meet the present-day need?

It is interesting to note that in 1900 there were 57 dental schools, in 1921 45 dental schools, and in 1933 but 39. At the present time there are 41 schools, only two of which offer dental training on a large scale to the Negro. Horner [3] states that many factors enter into the fixing of the numbers of students in dental schools and the number that are graduated, such as wars, depressions, and changing entrance requirements. The highest enrollment since 1925 was 9,014 in 1943, and the highest number of graduates since 1928, 2,470 in 1944. This increase was due to the accelerated plan of instruction operating during the war. The lowest enrollment since 1925 was 7,160 in 1933, the result of the depression in 1929. The lowest number of graduates since 1930 was 1,568 in 1941. This decrease was in part due to the effects of the depression, and in part to the increased requirements that went into effect in 1937.

If we accept Horner's figures, the number of dentists in this country in 1941 was 75,685 or 1 to 1,740 of population; in 1945—77,188, or 1 to 1,801 of population; and he estimates for 1950—76,632 or, 1 to 1,933 of population.

These data of Horner's [3] show an estimated loss of dentists, steadily, after the year 1947. Even with the creation of three new dental schools, which should provide the graduation of 2,500 dentists per year, and if from 1950 to 1960 we should have the expected increase in population of 6 per cent, we would have 82,500 dentists in 1960 and a popula-

tion per dentist of over 2,000. Thus it would appear that our population per dentist for the 3 decades from 1930 to 1960 will show a progressive increase and that the provision for dental care will be less in 1960 than it was in 1930.

If the many programs of health education in the past 3 decades have had the desired effect, there will be greater demands for dental services in general. Improved methods of transportation are making dentistry available to many in the rural areas. Organized groups are including dental services in their health programs. The new Army program will further disjoin the dentist: population ratio.

Says Morrey,[4]

> Since the number of graduates from dental schools is influenced by many things which upset the increase in the number that should be expected to take care of normal growth of the population and since it requires so many years to reëstablish this normal output, all plans for the expansion of dental service to the population are put in jeopardy, it would seem to me that some other plan for increasing the man-power is in order.
>
> There is no disputing the fact that, during the past fifteen years, the supply of dentists has not kept abreast of the public appreciation and demand for service; and that as a result, in the United States, dentistry is seriously undermanned. Any dental program, whether inaugurated on a national, state, or local level, must take that fact into serious consideration. Judging from existing figures and by the upward trend in public appreciation of dental service, it seems safe to predict that the dental profession will be barely able to meet current dental demands and that, under present methods of practice, the profession will be exceedingly over-taxed to supply anticipated future demands.

Again quoting from Morrey[5]:

> Until that day dawns when therapeutic measures can be employed to prevent dental caries, the dental profession should bend its every effort and the efforts of its auxiliary forces toward controlling caries by the most practical method known at the present time, namely, dental operative procedures for children. This is not a new formula, on the contrary, it is one that has been advocated for many years. Unfortunately, it has never been wholeheartedly accepted by the public, and it has been accepted only in principle, but not in fact, by many members of the dental profession.

Klein[6] has made a rather exhaustive study of the needs of the population and has estimated the number of chair-hours that would be required to take care of the accumulated needs and the yearly incidence of decay. Time will permit but one quotation: "The yearly crop of dental need in the whole American population requires for its service probably at least double the present volume of dentists, that is, instead of 65,000 dentists, at least 130,000 are required, just for yearly maintenance." It is interesting to note that in the 107 years since the first dental graduates were sent forth there have been but 126,500 following in their footsteps.

Unfortunately the child suffers most from the lack of man power, pointed out so convincingly by Klein. There are but two or three hundred dentists in this country who devote their entire time to dentistry for children, while the general practioner seems largely indifferent to the needs of the child. Children are apt to be difficult patients, making it hard to render good service and, in the hands of most operators, limiting the types of materials that may be used for fillings. Rarely are inlays indicated or possible; rarely are crowns and bridges inserted. Dentistry for children is not made available in many offices because it brings comparatively small financial returns. Yet children should receive more dental service, beginning at a very early age and on a constantly continuing basis.

Consider just one of the ills that beset the child who does not receive dental care: the early loss of deciduous teeth and of the six year molar—resulting in the drifting of teeth—is one of the greatest causes of malocclusion of the jaws. It has been estimated that 60 per cent of children today have malocclusions that should be treated by the orthodon-

tist. The services of the orthodontists are necessarily costly, and there are far too few to serve the need. Such services are but rarely available to those in the low income group; very few clinics offer such services to the indigent.

Bauer[7] states that the fact that the child receives secondary consideration was impressed forcibly upon the laity and the profession in the reports of Selective Service. He feels that the lack of financial returns, poor patient management, the lack of preparation provided by many schools, and the subordinate place of pediodontics in state board examinations are responsible for this lack of service.

Salzmann[8] observes that it requires a general depression such as was experienced in the early and middle 30's to make the profession turn toward meeting the needs of children, and that during the war and since then, pediodontics has reached a very low ebb. The American Dental Association and various state and local dental societies, recognizing this trend, made appeals on professional as well as patriotic grounds that children be given priority appointments, but in spite of a high per cent of pledges by the profession, in actual practice it was found that children were not being favored. Salzmann goes on to state "that between the unwillingness of the private dentist to meet his responsibility to children and the growing demand upon the part of interested lay groups, it may well be that the provision of dental care for the children will be taken out of the hands of the profession altogether. Already there is talk of developing auxiliary workers to care for the children."[9, 10]

Jeserich[11] states it this way:

> The present regime of practice demands a heavy concentration of effort and thinking on technical procedures, based vaguely on a rather confused background of biologic principles with a gradually fading consciousness of their significance and as a result a waning effort to correlate them with clinical practice. More hands especially trained for technical procedures under the direction and supervision of the licensed dentist . . . with a practice regime permitting the use of this concept to guide his and the hands of others, would seem to be desirable from the points of view of both quantitative and qualitative service considerations. Part of medicine's greater appeal when compared with dentistry is due to the fact that it affords an opportunity to use the mind without so much emphasis on technics. Dentistry's thinking is too fettered to technics by the nature of its present system of practice. In medicine, nurses, technicians, interns, and other aides make it possible for one mind to direct and guide several hands and minds trained to be auxiliary aides.
>
> The dental profession seems to fear that something will be taken away from it whenever the creation of any group of auxiliary aides is discussed. As long as these aides are under the immediate supervision of properly trained ethical practitioners, and have had adequate training for their limited function, such fears do not seem logical and would appear unwarranted. It would be more logical to presume that something was being given to the profession rather than taken away, both from the objective of quality and quantity of service and from the point of view of economic considerations favorable to the profession as well as to the people served. The violations of auxiliary aides would be dependent entirely upon the ethics of the licensed practitioner, and in the last analysis the profession of dentistry. There would have to be a deliberate breach of ethics or law by the profession to have violations. Are we afraid of ourselves or the auxiliary aides?

I would like to quote Elam[12]:

> It is my considered opinion that the time has come when the dental profession must broaden its auxiliary services if it expects to meet the increasing demands upon it. At the same time it must protect its present standards of dental education and exert firm control over all phases of dental service. . . . The fact is, as I see it, the dentist without help cannot possibly supply the demands for all dental services. The demands are increasing daily and unless the demands are met by the profession, other agencies will seek to supply them. This can be done in many ways as has been attempted in other countries. The only solution for the profession, to meet its obligation to the public, is to accept, train, and control all the help that it needs.

Since the number of new graduates entering practice each year is not to any

great extent exceeding the number of practitioners who retire or die annually, it is obvious that making dental service more readily available to the public cannot be brought about for many years by merely adding to the total of practitioners in the usual way. The previously mentioned committee of the A.P.H.A. is well aware of this fact, and after reviewing the present use of auxiliary personnel by the dental profession—the hygienist, the chair assistant, the laboratory technician, as well as the use of multiple operating units—finds that these present practices fall far short of producing the man power hours required to meet the present demands for dental service and that the development of a new type of auxiliary worker should be considered, if more extensive public health programs in the dental field are to be made possible.

A study of the system in use in New Zealand has been made and brings to light the following: The government in 1919, reviewing the health of its armed forces during World War I, determined to do something about the dental health of its children, and instituted the New Zealand School Dental Service. In 1920 Col. T. A. Hunter, C.B.E., Director of the Army Dental Service during the war, was appointed Chief Dental Officer of this post-war service.

Colonel Hunter's proposals were considered revolutionary but eventually the New Zealand Dental Association gave its formal approval of his proposals and the first draft of young women to undergo training as dental nurses was appointed in 1921.

This service, created by the government, organized and controlled by the Director of the Dental Division of the Department of Health, was organized in six units, each of which is controlled by a senior dental officer who is directly responsible to the director. These officers are the Principal of the Dominion Training School for Dental Nurses, and the Senior Dental Officers in charge of the five dental districts into which the Dominion is organized.

Graduate school dental nurses are officers of the Department of Health, but they are "attached for special duty" to the staff of the school at which their clinic is situated. While they come under the general jurisdiction of the Headmaster, their actual controlling officer is the Senior Dental Officer who is assisted by a staff of inspectors and assistants.

The school dental nurse receives her training in a special school at Wellington. The applicant must be a young woman with high physical fitness, good personality, between the ages of 17 and 25 years. She must have passed, as a minimum requirement, the university entrance examination or school certificate examination. She must agree to serve for not less than five years, including the two years training period. The cost of the training is borne by the government.

The curriculum is well planned to provide the student with the ability, among other things, to fill and extract deciduous and permanent teeth. The senior Dental Officer or his aides are consulted in regard to any patients who present conditions which appear to require special treatment. Health education is stressed, so that the patients may be instructed in the principles of oral hygiene and the preservation of the teeth.

There is no means test. All children are eligible, irrespective of the social or financial position of their parents. Attending school is a prerequisite to obtaining dental treatment, except in the case of preschool children and adolescents. It is necessary to enroll while in the primer classes, that is, not later than the second year of attending school but enrollment during preschool age is preferred and encouraged. It is interesting to note that eligibility for the ex-

tended service that embraces the adolescent group is contingent upon a person having undergone regular treatment up to within three months of the time of application, either at a school dental clinic or at the hands of a private dental practioner.

Every patient is required to undertake: (a) to attend for treatment or examination at such times as may be required; (b) to apply for treatment as soon as he becomes aware that treatment is needed; (c) to apply for examination at an interval of six months from his completion (the responsibility for this is placed on the system, but the patient should draw attention to any omission to call him up); (d) faithfully to carry out such instructions as are given in regard to oral hygiene and dental health.

If a patient should fail to report within twelve months of his previous completion, his name may be removed from the roll. He may be reënrolled if he has his dental condition restored to a satisfactory standard at his own expense.

The school dental nurse supplies the service for the child until he reaches the age of 13. Not more than 500 children may be assigned to one nurse. The adolescent group, recently included in the program, is served by dentists.

The annual report for 1946–1947 shows that for the year ending March 31, 1947, there have been established 456 treatment centers; the staff numbered 679 including 206 student dental nurses. There were 423 school dental nurses in the field. There were 226,798 children under treatment; 2,313 schools were embraced in the treatment areas. From the report I note a ratio of 6.3 extractions to every 100 fillings, which is quite a contrast to 114.5 extractions per 100 fillings in the first year of the program. The cost of the service per child was approximately £1 per annum. The costs include salaries, maintenance of hostels for housing the student nurses, and buildings. The school dental clinics in the field are built by the Educational Department and are not included in the cost figures. The cost of training a dental nurse in the last yearly report was given as £600 for the two years. Against this figure is assessed the value of the clinical services which are rendered during the second year, of £200, making the net cost of educating the dental nurse £400. I have long been of the opinion that this program which has been in operation in New Zealand for 27 years, if introduced into this country would in time solve the problems that have been stated by Morrey, Salzmann, Elam, Klein, Jeserich, Millberry, Clawson, McCall, and others.

I have discussed with the deans of several dental schools the possibility of producing a course comparable to the one given in New Zealand at the training center for school dental nurses in Wellington. Without exception these men stated that it would be possible to provide a similar or better course of instruction at their institutions.

Clawson[13] said recently that he and his colleagues at Meharry have given considerable thought to a plan which is based on their willingness and ability to offer a curriculum from which all subjects not essential for dentistry for children would be eliminated and only those subjects absolutely essential to good children's dentistry would be retained, in a two years course. I must refer you for further consideration of the rather elaborate plan to Clawson's complete statement, but let me quote briefly: "We would give it a trial tomorrow if I could find one state board that would give a licensing examination to the product of the course."

I have presented the picture of the present lack of dental personnel and the rather dubious outlook for the reduction in the future of the dentist; population ratio. I have not included

in this presentation an estimate of what proportional changes may result as the "draft" program gets underway, because at this time the picture is not clear.

I have very briefly outlined the need; it is so very well known to all of us. I have quoted various men, prominent in the dental health and educational field, who believe that an extension of the type and use of auxiliary personnel by the dental profession is indicated. I have given a concise statement of the system that has been in vogue in New Zealand for 27 years. I have quoted a plan that has been projected by a well known dental educator, who has had vast experience in dental education at home and abroad.

I am not unmindful of the strides that have been and are being made by scientists in their determination to discover the cause of dental decay and to apply their knowledge. The men who are outstanding in this field do not anticipate more than a 40 per cent decrease in the dental caries rate. Presupposing that, as a result of a general application of new knowledges, the adolescent enters adulthood with better teeth and more of them, and the life expectancy continues to be pressed upward, then there will be more of the diseases of the oral tissues that come with age to be treated. Naturally the field of the dentist would be extended with this new demand and the children who would require service would still not find it available.

There is considerable difference between the need for services and the demand by the population. But I cannot agree with a statement made recently that the demand rather than the need for dental services should be the guiding principles in increasing the number of dentists and auxiliary personnel.[14] I believe that dental services for children should be made readily available to every child.

I have long been of the opinion that a healthy mouth should be a prerequisite for enrollment in school and a requisite for the continuance in school. All existing obstacles that deprive children in the low income families or children on farms or in other sparcely settled areas, or Negro children, of dental services, would be removed if the state departments of health would make this new type of periodontist available to the schools. Hand in hand with education should go a healthy mouth.

In the opinion of the writer, which is shared by many others, a research project should be undertaken on this continent, in the United States preferably, so that the utilization of specially trained auxiliary personnel may be observed and evaluated by the profession. The personnel could receive a carefully worked out course of instruction, over a period of two years, at a recognized institution. Authorities in the field of pediodontics, dental education, and public health would advise and assist in the planning of the research project and the evaluation of results. It is to be hoped that some state will show a willingness to suspend its licensing law and be willing to sponsor the study. I believe funds could be made available.

Millberry, in October, 1938, at a joint session of the Child Hygiene and Public Health Education Sections of this Association presented a paper entitled "Possibilities and Means of Improving Dental Conditions in the United States." He said, among other things, "Does it not seem possible to you that we should be able to train persons to do these simple operations for children in two years time?"

When Dean Millberry's paper was published in the *Journal*,[15] the following was a part of the editorial that appeared in the same issue:

> There can be no doubt that the cost of dental treatment is high and that the funds for providing it on a community basis are all too small. Any relief, such as offered by Millberry, will seem welcome to public health

administrators, most of whom have little knowledge of the technical problems involved. Over against this group will be the mass of dentists who will probably prejudge this proposal on its departure from the *status quo* without inquiry into its possibilities. Without taking a stand for or against the Millberry plan, it at least seems proper to suggest its consideration by a group of dentists thoroughly familiar with the problems involved in giving dental care to American children. A critical evaluation of the New Zealand method seems desirable also, particularly with regard to its applicability to North America.

I am glad to report that now, after the passing of a decade since the appearance of the editorial quoted above, a committee of this association is actively engaged in studying this whole problem of securing more dental service for children and is planning steps to secure an experimental study of the use of the auxiliary operator with a two year course of education. These plans will require the support of all who are interested in medical care programs and particularly of those who wish to find a practical solution to the problem of providing adequate dental services for children.

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THE HEALTH EDUCATOR'S BOOKSHELF

OUR spring issue, a year ago, carried a stimulating Review Article on the Health Officer's Bookshelf. The health officer is, of course, the star of our show, but he is not the only one who must read books. There are a dozen other kinds of specialists on his staff, who need a dozen kinds of highly specialized knowledges. How can they get those knowledges and keep them unless they read the classics in our field—and the latest books as well?

This train of thought led the collective Editorial mind to the thought of expanding the Baedeker of Health which Dr. Huntington Williams began to explore so fruitfully last year. And the Health Educator seemed a logical next step. He (or more often she) must know something about everything in the entire field of health. The old saw tells us that the cultured man should know something about everything—but also everything about something. The Health Educator needs a wide vision of the whole field; but he must have also a deep and solid grasp of his own specialty, which is the imparting of knowledge and—in still greater degree—that impulsion of the spirit which creates the desire to use the knowledge gained. This is no easy task; and it is no surprise to find that while Dr. Williams recommended 79 books to the Health Officer, Dr. George Rosen—in the admirable review with which this JOURNAL opens—lists 118 volumes for the Health Educator. No wonder, this gifted type of specialist coördinates and integrates and educates and animates.

If our readers find the Bookshelves profitable, perhaps the other eleven sections may have their turn in the years to come.

HOUSING AND THE HEALTH OFFICER

THE general program of our Association Committee on the Hygiene of Housing was reviewed in the columns of this JOURNAL two years ago.[1] This committee was established in 1937 as the corresponding organ of the Housing Commission of the League of Nations for this continent. In 1938, it published its first report on the *Basic Principles of Healthful Housing*[2]; and, in 1941, a volume

on *Housing for Health* presented the results of a special conference called by the Milbank Memorial Fund.[3] During the past decade, the committee has developed—and has very recently completed—a technique for the realistic appraisal of housing quality.[4] This procedure makes it possible for the average sanitary inspector, after a few weeks of training, to evaluate the quality of the home and its environment with reproducible accuracy and to assign to each dwelling a penalty score expressing its significant health hazards in quantitative terms. The appraisal method, as M. A. Pond points out in this issue of the JOURNAL, contains 12 clearly defined "Basic Deficiencies" on any one of which the health officer can base legal proceedings. Even more important, however, is the fact that plotting the total penalty score (based on sampling surveys) on a city map gives a realistic picture of the character of individual blocks and larger areas which furnishes the soundest basis for future planning and for the adaptation of correctional measures or redevelopment to a given locality. Through the use of this procedure, the health officer can really "know his city" accurately. The gradual replacement of sporadic action following haphazard complaints by a comprehensive planned program will work a revolution in housing control. This revolution has already taken place in many American cities, as pointed out by Emil Tiboni on a preceding page of this JOURNAL. Such communities as Battle Creek, Mich., Brookline, Mass., Los Angeles, Calif., Milwaukee, Wis., New Haven, Conn., Panama City, C. Z., Philadelphia, Pa., Portland, Me., St. Louis, Mo., and Washington, D. C., have employed the appraisal method with significant results.

Sponsorship for this appraisal procedure has now been taken over by the U. S. Public Health Service, which is in position to offer counsel to any health officer who desires to employ it and to provide training facilities for the sanitarians who are to carry out the work. We confidently look forward to the time when all alert city and state health departments will include systematic housing evaluation in their program, as they include restaurant sanitation and milk control today.

During the past two years, the Committee on the Hygiene of Housing has been seriously handicapped by limitation of financial support and loss of some of the key members of its staff. The Milbank Memorial Fund has, however, recognized the vital nature of the problems involved and continued its loyal support. The staff has been reorganized and committee members are ready to devote liberally of their own time to work along two major lines.

The committee has planned, first of all, to complement its completed work on the definition of substandard housing by the preparation of a series of reports on the principles which should govern the construction of the healthful housing for which we hope in the future. The first volume, on *Planning the Neighborhood*[5] has already been published and is discussed by F. J. Adams in his contribution to our Boston Symposium. The committee is now at work on two subsequent volumes on "Planning the Home for Occupancy" and on "Construction and Equipment of the Home." It hopes to complete the report on "Planning the Home" within the present year. Standards for this purpose are most urgently needed, since not only speculative builders but government agencies are today advocating homes so narrowly constricted in space as to constitute a serious threat to health and amenity. Space is one of the most valuable things which the home builder has to sell; and in ten or twenty years we may be seriously embarrassed in dealing with "the slums of 1948 and 1949."

A second major project of the committee is the formulation of a report on the substantive content of a model housing code, under the leadership of E. R. Krumbiegel. The problems of building codes to govern new construction are also serious; and the committee is convinced that reform in this area must be effected by substituting broad performance standards for the minute structural provisions now in force, which are out-of-date a few months after such a code is adopted. The housing code for occupied dwellings, has, however, been the major concern of the committee. Such a code, in its judgment, should be enforced primarily by the health department as the one agency which possesses the necessary technical knowledge and has a force of inspectors constantly visiting the homes of the community. It is hoped that the report of the committee on this subject will give the health officer a model on which can be based a sound section on housing for his local sanitary code.

We believe that the program of the Committee on the Hygiene of Housing illustrates a significant trend in the whole field of sanitation, toward the goal of positive promotion of health and not merely the negative prevention of disease. The water supply engineer is interested in addition of fluorine as well as in elimination of typhoid germs; the industrial engineer in thermal air-conditioning, as well as in control of lead fumes. As Catherine Bauer has said in her contribution to the Boston Symposium, "Sanitary measures were undertaken to curb the fearful epidemics of filth-bred disease. Then gradually it became clear that not only the absence of dirt but the presence of sun, air, and adequate space are essential to the prevention of disease. And finally the whole emphasis changed from a remedial approach to more positive and constructive goals."

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FACING THE FACTS OF LIFE

THE Administration Bill, "to provide a national health insurance and public health program" (S 5 and H R 783) has been introduced in Congress. Its provisions—and its ultimate fate—will be of keen interest to all of us during the coming months.

Title I (a general Declaration of Purpose) need not concern us, since it is merely a statement of broad principles, to which almost everyone must agree. Title III, which deals with Development and Expansion of Health Services, provides for a continuation of federal grants such as the U. S. Public Health Service and the Children's Bureau have administered in the past. It is vitally important and some of its provisions may require consideration; but, in the main, it does not involve controversial issues.

Title II on Prepaid Personal Health Service Benefits, on the other hand, will be the central issue in a real battle. It creates a national system of health insurance covering employed (including self-employed) persons with certain family dependents of the insured. It is proposed that the plan be financed by a contribu-

tion equal to 3 per cent of all wages or net incomes up to $3,600 a year, with additional allocations from general tax funds. This measure obviously involves profound modification of our past social policy with respect to medical care. Its details will call for most careful analysis. We must consider whether the "tooling-up period" before the program would come into operation (in 1952) is adequate. We must be certain that the decentralization of the program to the state and local levels is as complete as appears at first glance. How will local areas be delimited and administered? What local advisory committees should be provided for representation of the professions and the public? How should a local medical care program be related to the jurisdictions of local health departments? Such details of administration and operation will require the most careful scrutiny, to avoid complications which have occurred in the introduction of the present British program. We must decide whether—and what—upper limits of income might be set for those receiving service. We must consider in what order of sequence particular services (hospital, office visits, home care, nursing, dentistry, etc.) should be provided for the insured. This last point is left for future administrative decision in the present bill; but it will vitally affect all aspects of the program. Estimates of cost and details of financing will require careful scrutiny. In these highly technical matters, we must rely on the advice of competent experts in this field. There are probably not more than twenty such experts in the United States (of whom the Editor of this *Journal* is not one); but ultimate responsibility must rest on all of us—after hearing the experts and considering their findings with open-minded reasonableness.

It is most important that we—in the public health profession—should consider this measure with a sense of special responsibility, since we do have some expert knowledge of the problems involved and since the administrative conduct of many aspects of the program may be in our hands. It is basically important that we, at least, shall view the problem honestly and on factual grounds and not be led astray by propaganda based on false emotional appeals.

The basic need for some method of making the beneficent results of American medicine available to families in the low-income and moderate-income groups (the great middle class of our population) has been amply demonstrated since the Committee on the Costs of Medical Care made its first study 15 years ago. It has, again and again, been shown that the less fortunate groups, in spite of our clinics and hospitals, receive less than half the medical care they need. The existence of the problem cannot be challenged. How can it be solved?

There are several possible solutions which have been suggested. The first of these is State Medicine, the provision of medical care to all citizens by public hospitals and by physicians and other professional personnel employed by the State, as we now provide education by State-employed teachers. This is the program of the Soviet Union; but it has no appreciable supporters—as applied on a wholesale scale to medicine—in the United States or Canada.

A second plan, now backed by a vigorous and vocal group in the United States, is extension of voluntary insurance (of the Blue Cross and Blue Shield Types), supplemented at the bottom of the scale by public medical care for the recipients of public assistance. This is a tempting program; and it operates with effectiveness for a certain relatively high income group. There are at present probably 3 million (certainly not more than 5 million) persons in the whole country covered by plans of voluntary insurance with fairly comprehensive scope. All others now classed as "voluntarily insured" are covered only for very limited

services. Both logic and experience indicate that such a program does not—and cannot—reach the large middle group of the population.

Families with an income above a certain level can meet even the emergency costs of illness when they arrive because they have an ample cushion of reserves on which they can draw in an emergency; these families get good medical care today, with no outside assistance. They constitute, however, only a small proportion of the population.

A second group of families have an income sufficient to meet the average cost of medical care but not enough to meet the emergency costs of illness as they arise. This is the group which benefits by voluntary insurance.

A third group of families—and a very large one—have incomes which are not sufficient to lay aside enough each year to cover even the average cost of medical care. This group cannot by any possibility share the benefits of voluntary insurance plans because they cannot afford the dues. It is this major group which a system of social insurance, financed by contribution from both the beneficiaries and their employers, is designed to serve.

If our rejection of State Medicine is sound (as it certainly is); and if Voluntary Insurance cannot possibly serve those unable to "volunteer" the money which they do not possess; there would seem to be three possible courses to pursue.

We can decide to do nothing about the matter except to develop Voluntary Insurance for the relatively high income groups; but it is doubtful if this policy can be indefinitely pursued in a democratic society, to which we have been preaching that—in the words of the WHO Constitution—"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition."

Or, we can accept the broad principle of social insurance, supported jointly by both employer and employee, and strive to perfect the details of a program of this sort so as to make it most effective and most economical, and so that it will be conducive to the highest possible standards of quality of medical care.

Or, perhaps, someone can devise some better way of meeting the basic problem. An adequate and universally acceptable plan would be a major boon to the United States and Canada, both of which nations are facing the issue in the immediate future.

But the problem cannot be solved by an ostrich policy of sticking our heads in the sand. It cannot be solved by denying its existence. It cannot be solved by asking families to join in support of voluntary insurance and pay out money which they do not possess.

It can only be solved by facing the basic economic realities of life.

THE PROBLEM OF HEART DISEASE

PRIORITY decisions in public health policy must be based on a balance between the magnitude of a given menace to health and the efficacy of available methods of meeting that menace. If a certain disease kills ten people a year in the community and we know how to control it, that disease takes priority over another which kills a hundred people but is not susceptible to demonstrated methods of prevention. From the standpoint of magnitude, diseases of the heart and blood vessels clearly constitute our Number One health problem,

since these diseases cause three times as many deaths as cancer, six times as many as accidents, seven times as many as kidney diseases, nine times as many as pneumonia and ten times as many as tuberculosis. From the standpoint of preventability, of course, diseases of the heart and blood vessels rank low in priority; but there are clear indications that this may not always be the case.

In an admirable recent article,[1] Dr. H. M. Marvin, President-Elect of the American Heart Association reminds us that at least five different diseases are grouped under the major heading "diseases of the heart and blood vessels." These are: the conditions grouped under "congenital malformations of the heart"; syphilitic heart disease; rheumatic heart disease; arteriosclerotic heart disease; and hypertensive heart disease, related to high blood pressure. Congenital heart disease is, of course, a relatively small factor of the total problem and syphilitic heart disease is decreasing measurably. It is the last three types which present our major problem.

There are, in general, three major approaches to the control of disease—anti-microbial, nutritional, and therapeutic. All three of these approaches offer definite promise in dealing with one or another form of heart disease. We are as yet in the dark as to the relation of streptococci to rheumatic fever, but it is highly probable that such a relationship exists. Epidemiological control of streptococcosis is a promising avenue here and the use of sulfa drugs after an initial attack of rheumatic fever, the use of penicillin before and after extraction of teeth and operations about the nose and throat and the treatment of bacterial endocarditis by penicillin have yielded encouraging results.

From the approach of the nutritionist and biochemist comes evidence suggesting that obesity and a high blood content of cholesterol are associated with coronary disease and that a saltless diet may be of material value in checking the development of arteriosclerosis.

In the field of therapeutics, treatment of victims of coronary thrombosis with dicumarol has yielded highly encouraging results and several serious malformations of the heart in children may be corrected by surgery.

These are only glimpses of small sections of the problems involved. Dr. Marvin is correct when he tells us "that if this country is to make any significant advance in conquering its leading cause of death, it must be in the first place through wide, intensive, prolonged research by competent investigators who can devote all their time and energies to the task." Hope for the future lies in the program of the National Heart Institute at Bethesda, in the stimulative efforts of the American Heart Association and the studies under way in our universities, particularly the basic work of Ancel Keys on the physiology of the aging process at the School of Public Health in Minneapolis. From the research laboratory must come the knowledge which will bring the controlability of heart disease on a par with its magnitude as a cause of death. If such investigations are adequately supported, a decade—or two decades—of research should make diseases of the heart and arteries a major practical objective for the health officer.

REFERENCE

1. *Yale Rev.*, 38:283 (Winter), 1949.

Clearing House on Public Health Salary Information and Personnel Needs

Salaries Are Not the Whole of Recruitment

It is obvious that salaries are not an isolated phenomenon but rather one element in the larger problems of recruitment and personnel needs. It is logical, therefore, that the Clearing House should deal with the other facets of these problems. In this issue therefore, a first step has been taken toward broadening its coverage. It contains some items of significance to recruitment which do not primarily deal with salaries.

The further success of the Clearing House depends on the continued coöperation of the readers of the *Journal*. As has been the case heretofore, contributions dealing with salaries and also significant items dealing with personnel needs and recruitment are invited.

California Does Something About Recruitment

To stimulate recruitment for public health vacancies in California, the California State Health Department has published an appealing 16 page pamphlet entitled: "Thinking about Your Future? What About a Career in Public Health?" It contains a brief summary of the agencies and branches of activity in public health work and devotes individual sections respectively to the jobs of health officer, public health nurse, public health engineer, sanitarian, health educator, public health analyst, and laboratory technician. In each section the activities characteristic of the particular job are described and illustrated by examples and attractive drawings. Salary ranges, training requirements, and the general professional outlook are included. The text is well written and carefully avoids "lingo." The pamphlet is equally suitable for high school students and for those with more advanced education.

A total of 25,000 copies of the pamphlet have already been printed. They are being distributed through the State Department of Education to vocational counselors in high schools, colleges and universities in the state. It is expected that this will be followed by many requests for copies for student distribution which will be handled by the local health departments.

The California State Health Department is unable to send quantities of the pamphlet outside the state. One state has already been granted permission to reprint the pamphlet with a credit line to the California department.

In addition to "Thinking about Your Future," a recruitment pamphlet on physicians in public health is in preparation, planned jointly by the State Personnel Board and the State Health Department. The Health Department is also distributing two one page (quarterly) bulletins containing information on vacancies in public health medical positions, scholarships, and postgraduate public health training, to medical schools and to hospitals in the state approved for intern and residency training.

All in all it looks like an energetic and promising beginning in reducing the personnel shortage in public health positions in California. Yet, California

is not as badly off in this respect as many other states. If these states also would devise and carry out recruitment programs tailored to their individual needs, the shortage of personnel, several years hence, might be less severe than it is now.

DEFENSE SECRETARY CAMPAIGNS FOR MEDICAL PERSONNEL

As of February 15, former U. S. Defense Secretary James Forrestal began a national campaign seeking physician and dentist volunteers for the armed forces. This campaign was proposed by the armed forces Medical Advisory Committee. A campaign committee is made up of the three Surgeons General of the Army, Navy, and Air Force, and serves as a liaison with the American Medical Association, American Dental Association, and other interested professional and non-professional groups.

This campaign for volunteers is said to be preliminary to compulsory induction of such medical and dental personnel. It is based on the fact that there is a pool of 8,000 young men who received their training in whole or in part at government expense and who did not serve in the armed forces, and a further pool of 7,000 who were deferred to continue their training at their own expense

From these two groups it is hoped to recruit as volunteers 2,200 physicians and 1,400 dentists to meet expected shortages by December, 1949.

Physicians and dentists are asked to volunteer for a minimum of one year. They would receive $100 a month in addition to prescribed pay and allowances for their rank.

Concurrently with the campaign for volunteers, the Advisory Committee has promised a careful and continuing review of the work load of the medical and dental services and of the utilization of professional personnel to determine where economies can be made.

Obviously this campaign or the compulsory inductions that may follow if it fails to meet its goal, will further reduce medical and dental personnel available for public health agencies. It underlines further the necessity of stepping up recruitment and training programs, of bringing salaries into line, and of a "careful and continuing review of the work load and of the utilization of professional personnel." Perhaps, translated into grass roots terms, that might mean no longer should a medical officer of health carry on for a population of 20,000 a multitude of activities, many of which could well be done by less scarce personnel, leaving him free to give his expert services to 3, 4, or 5 times that population.

HEALTH EDUCATION SECTION SALARY RECOMMENDATIONS

Recommended standards for health educators' salaries have been in progress of development during the past year. At the American Public Health Association's Annual Meeting in Atlantic City in 1947, the Committee on Health Education Planning of the Health Education Section created a subcommittee on salaries for health educational personnel. Its Chairman is Alfred K. George, M.D., of the Department of Preventive Medicine of the University of Cincinnati School of Medicine.

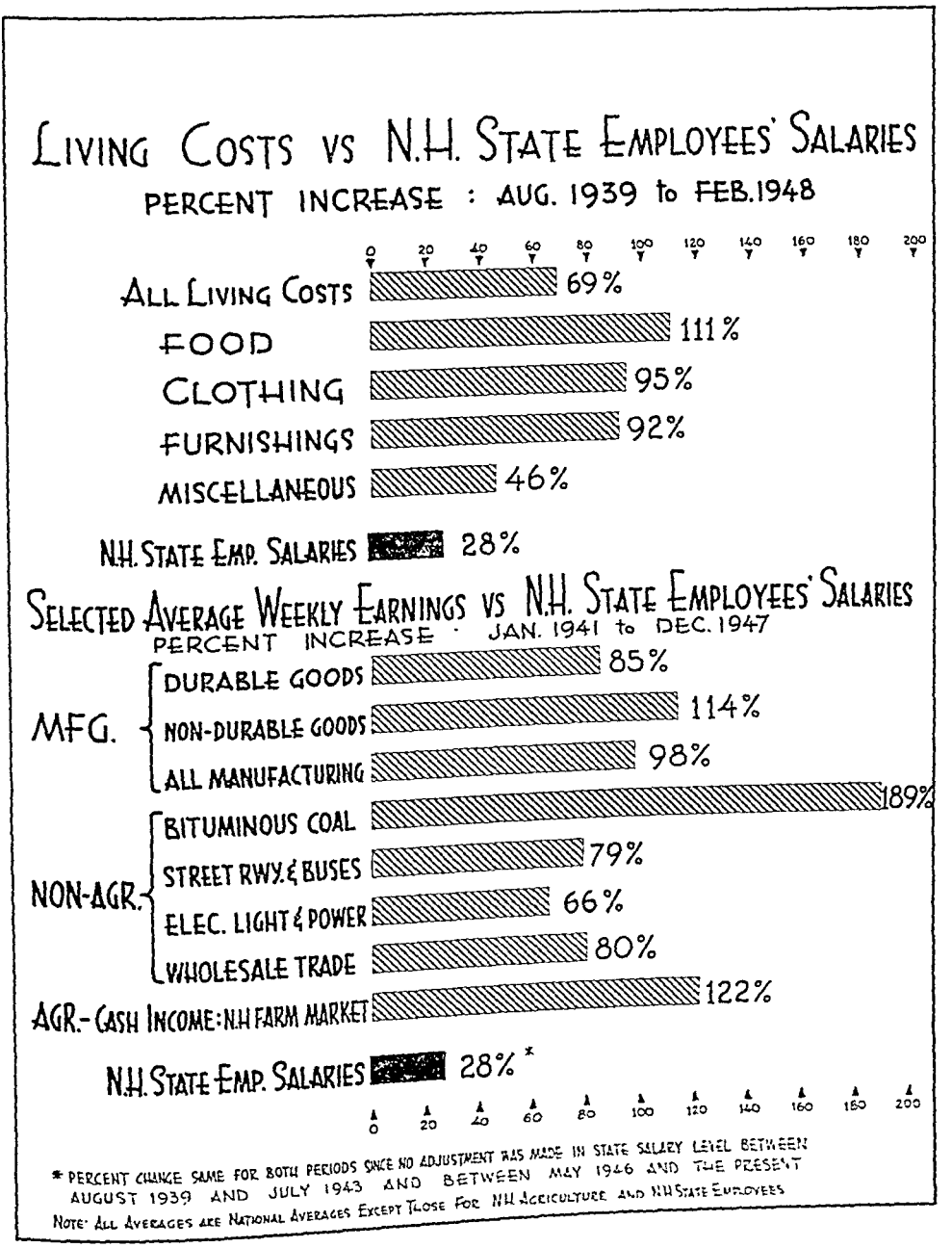
This subcommittee's report, Proposed Levels of Recommended Starting Salaries for Six Grades of Positions for Community Health Educators, was unanimously accepted by the parent committee on Planning for Health Education, in November during the American Public Health Association's Annual Meeting in Boston.

In addition to background information, particularly the varied factors that enter into the determination of appropriate salaries in any specific time or place, the report describes the six grades of positions in terms both of job descriptions and recommended qualifications.

The study is available in mimeograph form for limited distribution from Dr. Alfred K. George, University of Cincinnati College of Medicine, Cincinnati, Ohio.

NEW HAMPSHIRE EMPLOYEES' SALARY BRIEF

The State Employees' Association of New Hampshire has made an interesting approach to the problem of increased salaries for state workers. It prepared a brief for presentation to the General Court which alone has the power to grant increases. Its brief took the form of comparisons between the percentage rise in salaries of New Hampshire employees for the period 1939–1948 and two other factors: the percentage rise in cost of living and the percentage rise



in weekly earnings and of farm income for a somewhat shorter period. One of the charts accompanying the brief is reproduced here. Such a chart might well be adapted for use by public health workers who need to dramatize their salaries in relation to the cost of living.

HOSPITAL SALARIES AND WORKING HOURS

The 4th annual salary survey of the American Hospital Association was recently published. It showed that the typical hospital employee worked fewer hours and received nearly 10 per cent more pay than he did in 1947. His salary had increased by an average of 28 per cent since 1945. The survey, covering more than 4,600 non-federal hospitals gives salary and other information classified by state, size of hospital, size of community, among other details. It is summarized in the February, 1949, issue of *Hospitals,* the Journal of the American Hospital Association, and is presumably available in full from the American Hospital Association, 18 E. Division St., Chicago 10.

SOCIAL WORK EMPLOYMENT CONDITIONS

Social workers, along with teachers and public health workers, have been traditionally in the depressed salary level group. They too are concerning themselves with the salaries and working conditions of their profession.

Under the sponsorship of the American Association of Social Workers, the National Council of Social Work Education, and the National Social Welfare Assembly, the U. S. Bureau of Labor Statistics is conducting a study of salaries and related working conditions among the approximately 50,000 social workers in the United States. It has already completed a pilot survey in Michigan based on about 2,000 returned questionnaires. An analysis of this pilot study appears in the current (April) issue of the monthly *Labor Review* of the U. S. Bureau of Labor Statistics, Washington, D. C.

A NEW STEP IN THE ACCREDITATION PROGRAM

The Executive Board on January 28, 1949, approved the recommendations of the Committee on Professional Education to accredit institutions for Master's degrees other than the M.P.H. (M.A., M.S., M.S.P.H., M.Ed., etc.) with specialization in the field of public health education. This accreditation will be limited to institutions with schools of public health already accredited for the M.P.H. degree. The schools of public health will be in a position to utilize the teaching facilities of closely collaborating university departments and to grant admission to students interested in a career in health education who do not meet the admission requirements for the M.P.H. course but appear otherwise qualified. Below are printed the Criteria for the accreditation of Master's degrees in public health education other than the M.P.H.

It is believed that this step will enable most of the schools of public health to increase materially the number of those students who wish to prepare themselves for a career in public health education. It is hoped that this may be one step in the direction of relieving the shortage of trained community health educators.

Criteria for Institutions To Be Accredited for Master's Degrees other than the M.P.H. (M.A., M.S., M.S.P.H., M.Ed., etc.), with Specialization in the Field of Public Health Education, for the Academic Year 1949–1950 *

1. Candidates admitted for the degree must hold a Bachelor's degree and must have completed at the collegiate level or must include as part of their graduate year, basic academic training in the fields of chemistry, biology, bacteriology, physiology, sociology, psychology, and education.

2. The course for the Master's degree must occupy at least one academic year of which at least half time must be devoted to study in the subject matter areas listed in paragraph 4a, b, and c below.

3. The curriculum must be given in a school of public health accredited by the American Public Health Association or in such collaboration with such a school that the requirements of paragraph 4a, b, and c below are satisfied through utilization of courses in said school or acceptable for credit in said school.

4. The following areas of knowledge should be covered in the graduate course unless credits for previous work acceptable to the institution are presented:

a. Physiological and psychological hygiene (including nutrition and mental hygiene)

b. Microbiology, epidemiology, and sanitation

c. Community health and community organization (including both official and voluntary agencies)

d. Health education (including both public health education and school health education)

* Adopted by the Committee on Professional Education of the American Public Health Association, December 8, 1948; approved by the Executive Board, January 28, 1949.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Essentials of Public Health—*By William P. Shepard, with the Collaboration of Charles Edward Smith, Rodney Rau Beard, and Leon Benedict Reynolds. Philadelphia: Lippincott,* 1948. xviii plus 600 pp. plus 29 charts, plus 19 illus. Price, $5.00.

This volume is unique in the current literature of public health. Dr. Shepard, with the assistance of three colleagues who have contributed important chapters, has set out to present public health, rather than preventive medicine, to medical students and practising physicians. He has attempted to point out the responsibility of the physician and his relationship to the community program.

After an opening chapter which defines the problem of public health and describes the various participating agencies, there follows a series of sections dealing with the modern public health program. Professor L. B. Reynolds and Dr. C. E. Smith contribute an excellent section on environmental sanitation. The discussions of various processes are adequate for the medical practitioner, though far less detailed than is commonly found in many texts. A section on communicable diseases by Dr. Smith is written in quite general terms, leaving the detail for two highly valuable and comprehensive tables. Dr. Shepard discusses tuberculosis, venereal diseases, maternal and child health, school health, adult health, health education and industrial hygiene. Dr. Beard contributes an additional section on occupational health and on statistics.

This is not a text of preventive medicine or of epidemiology. On the contrary, the authors have quite generally assumed that the reader is already familiar with medical details of preventive procedures and have limited their discussions to the aims and operations of community programs. At times they may even have assumed too great a familiarity. Throughout the volume they have stressed the relationship between the physician in private practice and the various agencies participating in the community program, and have pointed out the division of responsibility as well as the basis for coöperation.

Dr. Shepard and his colleagues have succeeded admirably in their chosen task but in doing so have produced a volume of equal if not greater interest to the public health administrator. The latter can read it with real profit to learn his relationship with practising physicians. The book will find its greatest usefulness for health officers and physicians already in practice and for medical students who are reaching the end of their formal schooling. If a book of this character could be read and taken to heart by all practitioners and health officers as they embark upon their respective careers, much of the misunderstanding that now exists could be avoided. GAYLORD W. ANDERSON

Advances in Biological and Medical Physics, Vol. I—*Edited by John H. Lawrence and Joseph G. Hamilton. New York: Academic Press, Inc.,* 1948. 484 pp., illus. Price, $8.60.

Scientists in many categories will find this book useful; to an increasing number it will be indispensable. It is the first issue of a projected annual review: "Each volume will contain from eight to twelve articles surveying the recent progress in radiation research, radiochemistry and tracer methods as applied

to biology and medicine." Though packed with detailed data, the editors found it necessary to omit many important topics for lack of space. Ten chapters by thirteen specialists review "fundamentals of radioactivity, instrumentation, techniques of application and radiation protection."

The opening chapter, by Dr. Lawrence and Dr. Ellsworth C. Dougherty, of the Division of Medical Physics, University of California at Berkeley, summarizes recent work with heavy and radioactive isotopes in clinical and experimental medicine. This is one of three chapters that will be of particular interest to physicians in practice, health officers, industrial physicians, those engaged in certain phases of medical research, and to some industrial engineers. A suggestive part of this chapter is a table of 6 pages listing the important stable and radioactive isotopes that have so far found application in medical research.

Second of these three chapters is by Dr. H. M. Parker on radiation protection and that new area which has been designated as "Health-physics . . . a product of the war-time organization within the Plutonium Project." Dr. Parker defines it as "a borderline subject surrounded by Industrial Medicine, Radiobiology, Industrial Safety, Public Health, Physics, Engineering and Chemistry"! Everyone whose work may expose him to even minimal amounts of radiation could read this chapter with profit to his own and others' safety; likewise health officers, radiologists, industrial physicians, and engineers who are responsible for the safety of exposed personnel.

While much has already been published concerning the effects of the atomic bomb on the Japanese, the chapter by Drs. Joe W. Howland and Stafford L. Warren reviews these facts critically and adds interesting observations made one year later. The latter provide little confirmation of fears as to long-range effects. Possibly the time is still too short.

Material in the seven remaining chapters is of a highly technical nature, often involving extensive mathematical treatment characteristic of nuclear physics. It includes a summary of the nature and production of artificial radioactivity and its measurement, and details of research into fundamental physiology. If one who is untrained in these complexities has the patience to peer beneath the technicalities, he will discover the most exciting news in the world of science. Here man has the tools with which to explore those problems of living matter that have so far baffled his ingenuity, such as certain basic aspects of the metabolism of proteins, carbohydrates, fats, iron and hemoglobin, phospholipids, and nucleic acid derivatives; virus reproduction; antigen-antibody relationships; photosynthesis, etc. Work in each of these fields is reviewed in detail or briefly mentioned. Yet only a beginning has been made. We may say with Prof. A. N. Whitehead: "The whole of human practical activity is in the process of immediate transformation by novelties of organized knowledge."

Format of the book is excellent. Each chapter begins with an outline of its contents and is followed by a bibliography of from 25 to 200 titles. There is an author index of 11 pages and a detailed subject index covering 17 more. An abundance of tables, charts, and formulae will be of practical aid to the specialist. GEORGE S. LUCKETT

Some British Pioneers of Social Medicine—*By Major Greenwood. New York: Oxford University Press*, 1948, 118 pp. Price, $4.00.

Social concern about health is of considerable antiquity. Only rarely, however, were the social relations of health made the subject of theoretical discussion. An instance that proves the rule

is the work of Ibu Khaldūn (1332–1406), North African historian and philosopher, who advanced a number of correlations between such factors as urbanization, diet, occupation, and mode of life, and the health of a population. It was during the 18th century that the need for consideration of social viewpoints in dealing with problems of medicine and hygiene was clearly recognized by medical men. It was left for the 19th century, however, to develop the idea of medicine as a social science and eventually to formulate a concept of social medicine.

In his book, which embodies the Heath Clark Lectures, University of London, delivered in 1946, Major Greenwood deals with certain aspects of this development in Britain. Admitting that he is more interested in social statistics than in administration or legislation, the author focuses attention chiefly on the contributions of certain British pioneers of social medicine who were interested in discovering by means of statistics the facts concerning the health of the society in which they lived. Greenwood traces the development of this line of thought in a series of selected biographical sketches from the 18th century to the close of the 19th century.

After appraising the work of John Graunt, William Petty, and Thomas Short, he discusses the activities of Thomas Percival and John Ferriar in Manchester. Separate chapters are then devoted to Edwin Chadwick, William Farr, John Simon, and the last chapter deals with Florence Nightingale and Francis Galton. Those familiar with Greenwood's other writings will know that these essays by a wise man, who has a great liking for "men who loved doing little sums," are written in delightful English. Of the two appendices, that entitled "The Epidemiological Future" is a must for every epidemiologist and health officer. It is unfortunate that the price of $4.00 should be set for this small book, as it is one that teachers might otherwise well urge students to buy. GEORGE ROSEN

Your Diet for Longer Life—*By James A. Tobey. New York: Wilfred Funk,* 1948. 280 pp. Price, $3.50.

"Good nutrition makes life worth living" is, in the author's phraseology, the theme of this handy reference book by a well known authority on health, in language addressed to the intelligent layman who is seeking help to maintain his vigor and vitality in later years. The scientific basis for good nutrition is simply and clearly explained.

The author's special emphasis on weight control through diet is in line with the best medical opinion that obesity predisposes to many of the chronic ills of middle and later years. Special dietary advice is given for several other abnormal conditions, as well as for the expectant and nursing mother. The author supports each recommendation with accepted scientific facts. The only criticism might be that he is more technical on certain subjects than others, and than is necessary to make his point. In a few instances he seems too ready to accept data not fully substantiated by other workers. The questions at the end of the chapters are not particularly stimulating and, in some instances, are rather vague.

In general, this little book is readable, scientifically sound, and a convincing exposition of the importance of good nutrition for a longer and fuller life.

HELEN S. MITCHELL

Introduction to Health Education—*By Jackson R. Sharman. New York: Barnes,* 1948. 273 pp. Price, $3.00.

"If teachers are to assume the important responsibility of educating all boys and girls in healthful ways of living, their preparation must cover at least the minimum essentials of health education. This book was prepared for use

in courses on health education for the general classroom teacher who can complete only one or two courses in the philosophy, subject matter, and methods of health education."

This book does meet the objectives set by the author. The philosophy which underlies the discussion throughout is in keeping with current thinking regarding the school health program.

Three broad areas are covered by the eleven chapters: background; school environment, health education curriculum, and principles of method in health education; and basic subject matter in health education.

The questions at the end of each chapter are provocative and should be of considerable assistance to the students. The references which follow each chapter are up-to-date and are culled from a wide field.

The paper, type size, printing, and format are in good taste and make for easy reading.

There are a few minor errors of fact, but on the whole the material is scientifically accurate.

Instructors of health education in the teachers colleges and schools of education will find this textbook of assistance in their introductory courses in health education. S. S. LIFSON

New Techniques of Happiness—*By Albert Edward Wiggam. New York: Wilfred Funk, Inc.*, 1948. 352 pp. Price, $3.75.

If we accept the meaning of health defined by the recent National Health Assembly as being "a state of complete physical, mental and social well-being," the above book is within the scope of public health. It is not concerned with abstract philosophy but is a digest of recent experiments and studies by outstanding psychologists concerned with finding more adequate social techniques. Dr. Wiggam, a distinguished science reporter, translates the findings of these scientists, comments on them, and points the way for the reader to use such findings in order to obtain greater happiness and contentment of mind. It is in this interpretation that the author himself gives a generous sprinkling of his own wholesome philosophy.

Some outstanding chapters are: How To Conquer Fear and Worry, How To Manage Your Emotions, and How To Get along with People. The studies on relaxation made in the Laboratory of Clinical Physiology, University of Chicago, are reported in some detail. The chapter, A New Way To Cure Bad Habits is so challenging that the reader may be tempted to try this new method of "negative practice."

While this book makes no attempt to approach the study of human conduct through psychiatry, it is nevertheless a readable digest of practical, applied psychology for both professional and lay readers. JEAN V. LATIMER

American Standard Practice for School Lighting—*New York: The Illuminating Engineering Society*, 1948. 77 pp., 45 illus. Price, 1 to 4 copies, 50¢ ea.; next 20 copies, 25¢ ea.; all over 24 copies, 15¢ ea.

The *American Standard Practice for School Lighting* is published under the auspices of the American Standards Association with the Illuminating Engineering Society and the American Institute of Architects serving as co-sponsors. It encompasses and provides specific recommendations for the many features of a classroom which constitute the visual environment for the students. For the first time in a publication of this type, specifications as to maximum fixture brightness and limiting brightness ratios, in addition to foot candle tables, are set forth to assure comfortable and easy seeing conditions in the classroom. Recommended reflectance values for desks, floors, wall, and ceiling are given which, with a good distribution of light,

will assure properly balanced brightnesses between these areas in the classroom. Illumination results to be expected from a considerable number of lighting installations, employing both incandescent and fluorescent sources, are indicated. The control and use of natural lighting is discussed. The relative merits of various fenestration techniques and daylight controls, including directional glass blocks and diffusing screens, are also set forth. The importance of adequate wiring for today's and tomorrow's needs are stressed in an Appendix, and the proper wire sizes are suggested for typical conditions to serve as a guide for the school architects.

The report is generously illustrated with photographs and charts. An extensive bibliography is also included. It should be of particular value to school administrators, building superintendents, members of environmental divisions of public health staffs, and school architects.

FRANCIS B. ELDER

Handbook of Practical Bacteriology—*By I. J. Mackie and J. E. McCartney (8th ed.). Baltimore: Williams & Wilkins,* 1948. 624 pp. Price, $7.00.

This handbook by English authors is a well-bound book on a fair grade of paper. The contents of the book extends from "Practical Bacteriology" to include, as indicated in the opening line of the first chapter, Bacteriology or Microbiology, which are obviously not synonymous.

In reading this very good book, one is impressed once again with the need of uniformity in terminology on a global basis; to mention only one example, such as "Bacillus" which is recognized by the authors on page 12.

It seems to the reviewer that bacteriology is definitely one field, viruses another, pathogenic fungi another, protozoa another—thus seven pages devoted to pathogenic fungi seems an injustice, even though the authors refer to other texts for detailed information. For a text on practical bacteriology, *per se,* future revisions might well follow expansion on the practical side and minimize the general textbook consideration.

Among many worth while features of this text, the reviewer directs attention to the chapter on microscopy as an excellent one. The fine chapter on culture media is an extensive and varied one, including such media as Lowenstein-Jensen Medium for cultivation of *Mycobacterium tuberculosis.* This particular medium is currently receiving deserved special emphasis at the United States Public Health Service Tuberculosis Evaluation Laboratory under Dr. Martin Cummings.

The text can be recommended for use as the authors indicate to those who have used its predecessors and further to those interested in a viewpoint, expression and approach somewhat different from that currently found in most texts by American authors.

F. C. LAWLER

American Nurses Association Public Relations Workshop—*A Manual of Practical Public Relations Techniques for the Guidance of the National Membership of the American Nurses Association. New York: American Nurses' Association,* 1948. 32 pp., 39 illus. Price, $2.50.

As indicated by the title, this manual was prepared for the membership of the A.N.A. and particularly for the chairman of Public Relations Committees of the state and district nurses' associations. Anyone, nurse or non-nurse, who is not familiar with how to use publicity media will find this manual helpful. It was prepared by Edward L. Bernays, Counsel for Public Relations for the A.N.A. He defines public relations and then explains its techniques in a very understandable way. Charts and photo-

graphs are used to illustrate his points and make the manual very easy reading.

The public health agency that does not have a trained, experienced public relations member of its staff might well buy a copy of this manual as an aid to those who are responsible for interpreting its work to the public. It tells how to approach newspaper editors, radio and television station program chairmen, and movie managers, and the kind of information that will interest them. The last chapter, Your Community Blueprint, should be particularly helpful to the young public health worker as it summarizes community groupings and suggests how to use them for interpretation purposes.

EMILIE G. SARGENT

Danger! Curves Ahead — *By Miriam Lincoln. New York: Macmillan,* 1948. 138 pp. Price, $2.50.

"This little volume on obesity has been prepared as an aid to those courageous souls who, realizing that they are overweight, have determined to do something about it but need guidance on procedure." This statement by the author in her introduction is really the theme of the book.

Obesity, its causes, dangers, and best methods of correction are discussed in a simple and interesting style. The reader is advised how to overcome some of the psychological handicaps of reducing successfully. Insight into the patient's emotional problems, anxieties, and frustrations is a specialty of the author in handling her patients.

The book is obviously addressed to overweight women and makes an appeal to pride in appearance, as well as to health. The nutritional advice given is sound but rather too brief for those with inquiring minds. The simple table of calorie values of foods and well planned reducing menus for different seasons of the year should be helpful. A unique feature is the list of low-calorie company menus for use when entertaining one's obese friends.

The reviewer does not hesitate to recommend this little volume to any woman without scientific background who is interested in maintaining, or re-establishing, her normal weight for her height and build.

HELEN S. MITCHELL

Emergency Maternity and Infant Care—A Study of Administrative Experience — *By Nathan Sinai and Odin W. Anderson. Ann Arbor: School of Public Health, University of Michigan. Bureau of Public Health Economics Research Series No. 3,* 1948. 181 pp.

This is the report of an administrative study of the Wartime Emergency Maternity and Infant Care Program. Being one of six national health plans which have been inaugurated in the United States during the past ten years, the authors regard EMIC as an "experimental laboratory," from which there are lessons to be learned. Most of the problems encountered in EMIC are inherent in any state or national health plan for the distribution of medical and hospital care, whether on a voluntary or compulsory basis.

In Part I, the authors tell the story of the hurried establishment and somewhat stormy career of EMIC. Many of the reasons for the confusions, tensions, and frustrations experienced by those intimately involved in the administration of the program and rendering services under its provisions, are analyzed. The scope of this huge undertaking and the size of the job accomplished are indicated.

For students in medical administration, Part II will be found to contain much valuable information. Such problems as methods of payment for physicians' and hospital services, the means test, and administrative controls are discussed in terms of the general prob-

lem and current practice in various past and existing plans as a background for the EMIC experience.

Here is material which present and future medical care administrators need to get their teeth into, while the medical care philosophers argue about the future. JESSIE M. BIERMAN

International Approaches to Problems of Undeveloped Areas—*Papers presented at the Round Table on Undeveloped Areas, 1947 Annual Conference of the Milbank Memorial Fund, New York.* 76 pp. Price, $.25.

One of the round tables at the 1947 Annual Conference of the Milbank Memorial Fund considered the demographic background of problems of undeveloped areas and the steps which might be taken in an international approach to these problems as they concern economic development, rural industrialization, and health aspects "in the social evolutionary perspective." Participants included Frank W. Notestein, Henri Laugier, David Weintraub, Leonard B. Rist, Samuel H. Thompson, William P. Forrest and Sir Raphael Cilento.

A specific application of general principles was focused on research and policy in Puerto Rico. Kingsley Davis and Rexford Guy Tugwell were the speakers.

The report develops the theme that genuine world prosperity is indivisible. Good coördination and team work among the different agencies and specialists concerned is necessary for the international approach to these problems. Solutions cannot be imposed from without; they must come from within. REGINALD M. ATWATER

Food Products—*By Henry C. Sherman (4th ed.). New York: Macmillan,* 1948. 428 pp. Price, $4.80.

As a sequel to Sherman's standard text *Chemistry of Food and Nutrition,* the present freshly revised volume is doubly welcome. The book adequately covers the subject matter for a broad general study of foods and food adjuncts. As stated in the preface, "For nearly all of us, food is the largest item in the cost of living and usually the most potent factor in the influence of daily habits upon health. Wise use of food thus means much for satisfaction and welfare. And to use food wisely one should have a fairly wide knowledge of food products."

The 15 chapters consider the several types of foods—fresh, and processed—from the points of view of production, composition, processing, and economics. As one would expect, the author interjects freely much material on nutritive value and dietetics. This adds materially to the value of the book. Each chapter is followed by a list of well chosen suggested readings and reference material. The book closes with an excellent chapter on The Problem of the Best Use of Food: with Some Aspects of Food Economics. A *must* for nutritionists and dietitians, and strongly recommended for physicians, nurses, and public health officials who need a handy reference on food products.

CARL R. FELLERS

Man-Made Plague, A Primer on Neurosis—*By William G. Niederland. New York: Renbayle House,* 1948. 298 pp. Price, $3.50.

This book of only 300 pages presents a very readable and scientific approach to "the great malaise of our time—nervous ailments which have become the most frequent cause of ill-health among civilized men." It comprises ten chapters, among which are: Signals–Symptoms–Sufferings; Neurosis: The Hidden Pain; Problems of Life and Love. Unlike most writers on these topics the author goes directly to the point of what he means, avoiding polysyllabic chatter and expressing his thoughts in

plain, simple language which an intelligent layman can understand. The reader is carried along with a flow of thought from a scholarly and independent thinker who has a first-hand knowledge of human beings as they live and strive in something called social organization. Familiar with psychiatric and psychoanalytic therapies, Dr. Niederland does not proclaim each or any as sales talk panacea. *Man-Made Plague* is a book that should be in the right-at-hand office library of every practising physician, health officer, nurse and social worker.

ESTHER LORING RICHARDS

Practical Bacteriology, Hematology and Parasitology—*By E. R. Stitt, Paul W. Clough, and Sara E. Branham (10th ed.). Philadelphia: Blakiston,* 1948. 989 pp. Price, $10.00.

After approximately forty years and ten editions this book still maintains its place of leadership as a practical reference book in the fields of bacteriology, parasitology, hematology, and clinical pathology. The phenomenal developments of the decade that has elapsed since the previous edition has necessitated extensive reworking of this treatise. The authors have deleted much outdated and less important material in favor of extensive additions of the newer developments in the various fields, particularly in the case of viruses and rickettsiae. They have called upon numerous specialists in the various fields to review the various sections to the end that an authoritative, accurate, and encyclopedic yet eminently practical volume has been produced.

This tenth edition consists of 989 pages divided into the four general subject headings noted above, plus a preface, and an appendix which is packed with useful information concerning laboratory reagents, apparatus, and procedures, together with an excellently arranged and usable index.

As an indication of the current nature of the material in this edition it should be noted that the bacteria taxonomy of the 6th edition of *Bergey's Manual,* which was published about the same time as this book, is used throughout. As in previous editions, the volume is replete with excellent diagrams, charts, tables, illustrations, and photographs. A number of the latter, particularly in the hematology section, are in color.

The book is well printed and firmly bound so that it should stand the rigors of laboratory use. Every public health and medical diagnostic laboratory should have this standard reference book immediately available. It will also be found invaluable by workers in any of the fields of communicable disease control.

M. H. MERRILL

Practical Therapeutics, A Course in—*By Martin Emil Rehfuss, F. Kenneth Albrecht, and Alison Howe Price. Baltimore: Williams & Wilkins,* 1948. 824 pp. Price, $15.00.

This book contains 824 pages of practical, readily usable information in therapeutics. It is a ready reference book for the medical student and for the busy practitioner. A short, concise opening chapter discusses the fundamental problems of modern therapy. The second section is devoted to a very thorough discussion of symptomatic therapy in which the differential diagnosis is presented and treatment for the relief of symptoms offered. Many old and new remedies are briefly, yet completely described. In Section Three the various disease entities as encountered in clinical medicine are given, followed by complete therapeutic directions. A fourth section deals with special treatments. The breadth of the subjects discussed is amazing. No important type of treatment is too insignificant nor any too complex to receive a place in this book.

All forms of therapy are completely

and well presented. Modern drugs, antibiotic agents, radiation, radioisotopes, psychosomatic measures, physical medicine, occupational training, and even nursing care are covered in outline style. The authors leave no room for doubt as to the indications for each drug, the dosage, method and frequency of administration, as well as the results to be anticipated.

The format of the book, the large type, the outline presentation and very complete index make the contents readily and quickly available to the busy practising physician.

GEORGE C. GRIFFITH

Health and Physical Education for Junior and Senior High Schools —*By David K. Brace. New York: Barnes,* 1948. 392 pp. Price, $4.00.

After a brief section on the organization and administration of programs in health education, physical education, recreation, and safety education, this book is devoted almost entirely to a series of short teaching units in health and physical education.

Many teachers will find this volume to be quite helpful in terms of guidance as to objectives, content, procedures, pupil activities, and evaluation of results gained from various suggested learning experiences.

In any attempt to cover two such broad fields as health education and physical education in a single small book it is inevitable that significant problems in both fields will be omitted. In this volume, however, the author covers a great deal of ground because the units presented are very concise and in outline form.

The author should bring his bibliography up-to-date, as many of the references and films cited are too old to give the reader a modern concept of problems in the field of health education. On page 369, for example, health books published in 1919, 1924, and 1928 are included, as are numerous references published in the 30's. New and significant developments come so rapidly in the field of health that these volumes cannot possibly present a current picture. Except for this weakness, the book should be helpful to health educators and physical educators alike.

OLIVER E. BYRD

Blood's Magic for All—*By Alton L. Blakeslee. New York: Public Affairs Committee, Inc.,* 1948. 32 pp. Price, $.20.

This pamphlet presents the story of blood in an unusually clear, well paced and complete fashion which makes excellent reading for lay or professional persons. It describes the development of our knowledge of blood and its components; the functions which these components serve; the various useful products made from blood; the ways in which these products can aid in the medical care of Everyman; the unmet problems and future advances which research on blood will resolve; and finally the story of the ways in which blood has been made available, and the tremendous project undertaken by the American National Red Cross to make blood and blood products available throughout the United States. All this is told with scarcely a flaw in fact or in emphasis, although one might wish that mention had been made of the civilian blood and plasma programs in many of our states, which preceded and laid the practical foundation for the present national program. The pamphlet may be heartily recommended to all health workers—and indeed to all citizens—since "Human blood today is a public health measure . . . It cannot be made synthetically. The only source of supply is the blood bank of human veins . . . The giving (of blood) gives you a personal share in fighting death and disease, in promoting public health. It makes you an active partner in the progress of medicine." GEOFFREY EDSALL

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ALLERGY. WHAT IT IS—WHAT TO DO ABOUT IT. *Harry Swartz.* New Brunswick, N. J.: Rutgers University, 1949. 203 pp. Price, $2.75.

CURRENT THERAPY 1949. Howard F. Conn, Editor. Philadelphia: Saunders, 1949. 672 pp. Price, $10.00.

DENTISTRY IN PUBLIC HEALTH. Edited by Walter J. Pelton and Jacob M. Wisan. Philadelphia: Saunders, 1949. 352 pp. Price, $5.50.

DIABETES AND ITS TREATMENT. Joseph H. Barch. New York: Oxford University Press, 1949. 326 pp. Price, $10.00.

DOCTORS OF INFAMY. The Story of the Nazi Medical Crimes. Alexander Mitscherlich and Fred Mielke. New York: Henry Schuman, 1949. 165 pp. Price, $3.00.

FETAL AND NEONATAL DEATH. Edith L. Potter and Fred L. Adair. (rev. ed.) Chicago: University of Chicago Press, 1949. 167 pp. Price, $3.75.

HANDBOOK OF DISEASES OF THE SKIN. Richard L. Sutton and Richard L. Sutton, Jr. St. Louis: Mosby, 1949. 719 pp. Price, $12.50.

HIGHWAY SAFETY—A CHALLENGE TO YOUTH. Washington: National Education Asso., 1949. 16 pp. Price, $.30.

INDUSTRIAL FLUOROSIS. Medical Research Council No. 22. John N. Agate, G. H. Ball, G. F. Boddie, et al. London: His Majesty's Stationery Office, 1949. 131 pp. Price, 4s.0d.Net.

MANUAL FOR TEACHING DIETETICS TO STUDENT NURSES. American Dietetic Association. Professional Education Committee and the National League of Nursing Education. Philadelphia: Saunders, 1949. 487 pp. Price, $4.25.

MATERNITY IN GREAT BRITAIN. A Survey of Social and Economic Aspects of Pregnancy and Childbirth undertaken by a Joint Committee of the Royal College of Obstetricians and Gynaecologists and the Population Investigation Committee. New York: Oxford University Press, 1949. 222 pp. Price, $4.00.

MINIMUM STANDARDS FOR SCHOOL BUSSES. Recommendations of National Conference on School Transportation (rev. ed., 1948). *Washington:* National Education Association, 1949. 58 pp. Price, $.35.

MODERN TRENDS IN PUBLIC HEALTH. Edited by Arthur Massey. New York: Hoeber, 1949. 549 pp. Price, $12.50.

ODORS. PHYSIOLOGY AND CONTROL. Carey P. McCord and William N. Witheridge. New York: McGraw-Hill, 1949. 397 pp. Price, $6.50.

PASTORAL COUNSELLING. Seward Hiltner. Nashville, Tenn.: Abingdon Cokesbury Press, 1949. 286 pp. Price, $3.00.

PROBLEM DRINKER, THE. Joseph Hirsh. New York: Duell, Sloan & Pearce, Inc., 1949. 196 pp. Price, $3.00.

SAFEGUARDING MOTHERHOOD. Sol T. DeLee. Philadelphia: Lippincott, 1949. 123 pp. Price, $2.00.

SAFER WAYS IN NURSING. To Protect Against Tuberculosis. A Guide for Precautions in the Care of Patients. Prepared by the Joint Tuberculosis Nursing Advisory Service of the National League of Nursing Education, National Organization for Public Health Nursing, National Tuberculosis Association, New York: N.T.A., 1948.

SOCIAL SECURITY LAWS, COMPILATION OF THE. Including Pamphlet on Social Security for Children, Washington: Gov. Ptg. Office. 114 pp. Price, $.25.

SOCIAL WORK YEAR BOOK 1949. Margaret B. Hodges, Editor (10th ed.) New York: Russell Sage Foundation, 1949. 669 pp. Price, $4.50.

STANDARDS AND TRAINING PROGRAMS FOR SCHOOL BUS DRIVERS. Recommendations of National Conference on School Transportation. Washington: National Education Assn., 1949. 24 pp. Price, $.30.

SUICIDE AND THE MEANING OF LIFE. M. von Andics. Pacoima, Calif.: The Sherwood Press, 1947. 219 pp. Price, $3.00.

STUDIES IN AIR HYGIENE. Medical Research Council No. 262. R. B. Bourdillon, O. M. Lidwell, and J. E. Lovelock. London: His Majesty's Stationery Office, 1948. 356 pp Price, 7s 6d. Net.

TUBERCULOSIS OF THE KNEE JOINT. Johannes Mortens. Copenhagen: Einar Munksgaard, 1948. 550 pp. Price, Dan,kr. 30.

VENEREAL DISEASES, THE. James Marshall (2nd. ed.) New York: Macmillan, 1949. 360 pp. Price, $5.50.

YOUR CHILD FROM 6 TO 12. Children's Bureau Publication No. 324. Washington: Gov. Ptg. Office, 1949. 141 pp. Price, $.20.

THE FOLLOWING REPORTS HAVE BEEN RECEIVED

AMERICAN NATIONAL RED CROSS. ANNUAL REPORT 1948. Washington: A.N.R.C. 187 pp.

ARLINGTON COUNTY, VIRGINIA. ANNUAL REPORT, 1948. Arlington, Va.: Department of Health. 52 pp.

CATTARAUGUS COUNTY, OLEAN, NEW YORK. 24TH ANNUAL REPORT FOR THE YEAR ENDING DEC. 31, 1946. Olean, N. Y.: County Department of Health. 57 pp.

CITY OF COVENTRY, ENGLAND. ANNUAL REPORT 1947. T. Morrison Clayton, Medical Officer. Coventry, England: Dept. of Health. 55 pp.

CLEVELAND'S HEALTH. ANNUAL REVIEW 1947. Cleveland, Ohio: City Department of Public Health and Welfare, Division of Health. 40 pp.

COMMONWEALTH FUND. ANNUAL REPORT 1948. New York: Commonwealth Fund, 1949. 48 pp.

DALTON-WHITFIELD COUNTY HEALTH DEPARTMENT, 1948. Dalton, Ga.: Department of Health.

ENVIRONMENTAL AND OCCUPATIONAL CANCER W. C. Hueper. Washington: Gov. Ptg. Office, 1949. 69 pp. Price, $.20.

FACTORS AFFECTING RESPONSE TO A FREE CHEST X-RAY SURVEY. A Study Conducted in South Jamaica, Queens County, N. Y. Ruth Wiseman. Jamaica, N. Y.: Queensboro Tuberculosis and Health Asso., Inc., 1949. 15 pp.

HAWAII, TERRITORY OF. ANNUAL REPORT OF THE BOARD OF HEALTH, 1948. Honolulu, Hawaii: Territory of Hawaii, Board of Health. 170 pp.

HAWAII'S HOSPITALS, PAST, PRESENT AND FUTURE. Raymond G. Nebelung and Robert C. Schmitt. Honolulu, Hawaii: Public Health Committee, 1948. 73 pp.

HEALTH IN NORTH DAKOTA. 30TH BIENNIAL REPORT July 1, 1946–June 30, 1948. Bismarck, N. D.: North Dakota State Department of Health. 131 pp.

HOMELESS MEN IN NEW YORK CITY. Report of the Project Committee on Homeless Men of the Welfare Council of New York City, New York, N. Y.: Welfare Council of New York City, 1949. 43 pp. Price, $.50.

INTERSTATE CONFERENCE ON RABIES CONTROL (Resumé). Hotel Roosevelt, New York, N. Y., December 15, 1948. Joint Legislative Committee on Interstate Coöperation. Albany, N. Y.: State Department of Health. 15 pp.

NATIONAL COMMISSION ON SAFETY EDUCATION. ANNUAL REPORT 1948. Washington, D. C.: National Education Association. 15 pp.

NATIONAL SOCIAL WELFARE ASSEMBLY. 1948 ANNUAL REPORT. New York: N.S.W.A., 1948. 35 pp.

NUFFIELD PROVINCIAL HOSPITALS TRUST, THE. A Report on the Purpose and Activities of the Trust 1939–1948. England: Oxford University Press, 1949. 54 pp.

PRETORIA, AFRICA, CITY COUNCIL OF. ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH 1946–1947. 79 pp.

PUBLIC HEALTH IN MARYLAND. 1947. Baltimore: State Department of Health, 1948. 46 pp.

REGULATIONS FOR LICENSING OF CONVALESCENT AND NURSING HOMES ALSO REGULATIONS FOR LICENSING OF BOARDING HOMES FOR THE AGED. Boston, Mass.: Massachusetts Department of Public Health.

RUSSELL SAGE FOUNDATION. ANNUAL REPORT 1947–1948. New York: Russell Sage Foundation. 18 pp.

SOCIAL SCIENCE RESEARCH COUNCIL ANNUAL REPORT 1947–1948. New York: Social Science Research Council. 73 pp.

THESE BEAR THE TORCH. Five Years of Progress in Mental Hygiene. Albany, N. Y. Department of Mental Hygiene. 50 pp.

THE UNEXPECTED GIFT. Dorothy Stephens Laird. Gainesville, Fla.: Project in Applied Economics, College of Education, University of Florida, 1948. 51 pp. Price, $.35.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Best Foot Forward—It is often a rewarding experience to see our native ways of doing things exposed for foreign examination. You will not be disappointed in this portrayal of our exuberant health educational activities reported by one of us who knows them inside and out. They are peculiarly American and we like them, he says.

BAUER, W. W. Health Education in the United States. Health Education J. (British) 7, 1:7 (Jan.), 1949.

On Our Way—We are progressing in our American studies of the efficacy of BCG. In the New York State plan, immunization is being extensively used with tuberculin-negative reactors who are occupationally exposed — nurses, medical students, hospital personnel.

BIRKHAUG, K. E. New Developments in BCG Vaccination. New York State J. Med. 49, 4:401 (Feb. 15), 1949.

Department of Semantics—What unfathomable gulfs exist in meanings of some plain English words as they are used on the opposite sides of the Atlantic Ocean! Across the water "social medicine" are words of distinction. Here they are something to be spat out at an adversary. Discussing postgraduate training for public health, this Britisher suggests a "diploma in social medicine." Imagine the consequences hereabouts.

BROCKINGTON, F. Social Medicine in Great Britain. Canad. Pub. Health J. 40, 1:22 (Jan.), 1949.

To Clear Away Some Confusion—Principally because it appears outside the usual run of bacteriological, medical or public health journals, your attention is called to this committee's opinion about what is, and what isn't, polio virus.

COMMITTEE ON NOMENCLATURE (NFIP). A Proposed Provisional Definition of Poliomyelitis Virus. Science 108, 2817:701 (Dec. 24), 1948.

As a Part of Social Security—What will interest you most—once you've recovered from your first amazed comprehension that this matter-of-fact account is describing the very same service depicted by most Americans as the hideous invention of the old Nick himself—is the change in local public health activities under the (British) National Health Service Act. Local health authorities will continue to administer maternal and child health projects, public health nursing services, immunizations, and special tuberculosis control and mental health activities, though they are relieved of hospital administration.

DAVIS, B. M. The British National Health Service. Pub. Health Rep. 64. 6:161 (Feb. 11), 1949.

Things We Don't Know about Pneumonia—On the reasonable assumption that what I can understand will be readily intelligible to all health workers, and may prove of interest to them as well, I thumb the specialty journals — bacteriological, immunological, etc.—in search of papers of use to others than the specialists. This one is about immunological paralysis. It proved to be somewhat beyond my depth but if you can keep afloat, you may get some new insight into the difficulties that plague researchers in pneumonia prophylaxis.

FELTON, L. D. The Significance of Antigen in Animal Tissues. J. Immunol. 61, 1:107 (Jan.), 1949.

A Simply Must—Maybe it's no more than just a sign of our own *Jour-*

nals' broad-mindedness, but this Annotated Bibliography's chief function seems to be to tell you about topnotch papers in rival scientific publications. Do not fail to read this one! Not only is it bread and butter, but it's dessert, too—nutritious orientation in an important social problem plus delectable writing! After discussing the way most Americans marry, divorce, and remarry, and behave in between, the writer comments, "They are amazingly legal about their immorality."

HILL, R. The American Family. Pub. Health Nurs. 41, 1:3 (Jan.), 1949.

Not To Be Read While Running—Quote. Perhaps the most exciting single event relative to human nutrition during the past year has been the isolation of vitamin B_{12} Unquote. For details of excitement see concentrated, capsule review.

KING, C. G. New Advances in the Science of Nutrition. J. Am. Dietet. A. 25, 2:109 (Feb.), 1949.

Epidemiologic Evidence—It seems that faulty plumbing must have been wildly imputed by persons unnamed to be responsible for the spread of polio. Two U.S.P.H.S. officers underscore the groundlessness of the accusation. Though other means cannot be ruled out, person-to-person contact is assumed to be the usual way the disease is spread, they say.

KRUSE, C. W., AND QUINBY, G. E. Plumbing Is Not Guilty of Polio. Plumbing and Heating 11, 6:24 (Jan.), 1949.

Nutrition is More Than Meals—Environment determines largely the state of nutrition and influences the incidence of malnutrition as well as its characteristics and manifestations. Environment also alters dietary requirements. That's the best I can do at reducing 90 pages of text to a couple of sentences. It's not any too revealing, is it? Well, try your hand at it.

KRUSE, H. D. A Concept of the Etiological Complex of Deficiency States with Especial Consideration of Conditions. Milbank Quart. 27, 1:5 (Jan.), 1949.

Answer: Tight Ones Do—To help determine whether gauze face masks do much good, rabbits (some covered with gauze masks, some uncovered) were exposed to an atmosphere heavily saturated with virulent bovine TB. There was a 90–95 per cent reduction of incidence of infection among the masked animals. Under normal exposure the protection might be expected to be complete.

LURIE, M. B., AND ABRAMSON, S. Do Masks Protect? Am. J. Nurs. 49, 2:100 (Feb.), 1949.

Something They Drank?—There wasn't enough milk to go round, so the enlisted men got only a ladle full on their morning cereal. What was left in the serving dishpan was then decanted into pitchers and later served to officers—as much as they wanted to drink. An explosive outbreak of polio occurred. One in 188 of the enlisted men came down with the disease. One in every 19 of the officers was attacked; and their infections were much more severe. Are you thinking what I'm thinking?

MATHEWS, F. P. Poliomyelitis Epidemic Possibly Milk-Borne in a Naval Station, Portland, Oregon. Am. J. Hyg. 49, 1:1 (Jan.), 1949.

Interesting Facts Department—At the peak of a polio epidemic only two species of blow flies, among all that were trapped, yielded positive tests for polio. Two weeks later house flies, flash flies, and the black blow fly were infected. Then came a spell when no flies carried polio, and as the epidemic subsided one species of blue bottle fly became positive again.

MELNICK, J. L. Isolation of Poliomyelitis Virus from Single Species of Flies Collected during an Urban Epidemic. Am. J. Hyg. 49, 1:8 (Jan.), 1949.

Now They Sterilize First—Six laundry workers who handled soiled linen from a laboratory where research with Q fever was carried on came down with the disease. Seven fellow employees in the laundry, who had no contact with the linen, remained free of infection.

OLIPHANT, J. W., *et al.* Q Fever in Laundry Workers, Presumably Transmitted from Contaminated Clothing. Am. J. Hyg. 49, 1:76 (Jan.), 1949.

Anent Rod-Sparing and Child-Spoiling—This may not be as new and unusual as I think it is, but still it should be brought to your eyes. In Rochester a letter was sent to all mothers of 2½ year olds inviting them to bring the youngsters to the Health Institute for a check-up which constituted a Revised Stanford-Binet test plus interpretive advice. For what happens thereafter, see paper.

ROBERTS, K. E., AND ALLDRICH, C. A. A Program To Foster Adjustment in Young Children. Pediatrics 3, 2:195 (Feb.), 1949.

Good News—Though this is therapy it is a concern of preventive medicine. A small number of cases of primary, atypical, non-bacterial pneumonia responded well to treatment with aureomycin. The rickettsias and some of the viruses, apparently, have at last found their chemotherapeutic come-uppance.

SCHOENBACH, E. B., AND BRYER, M. S. Treatment of Primary Atypical Non-Bacterial Pneumonia with Aureomycin. J.A.M.A. 139, 5:275 (Jan. 29), 1949.

Here's A What-Dun-It? For You—From a slum area in Stockton-On-Tees a group of people was moved to a new housing project. During a five year period a check was kept on the health of the happy 710. Standardized death rates among the fortunate ones rose materially and were consistently higher than among the unfortunate controls who remained in the slums. Can you figure out a reason?

SHANK, R. E. Nutrition in Preventive Medicine. Nutrition Rev. 7, 1:1 (Jan.), 1949.

Not Yet Foolproof—Of first importance to child hygienists is this study of a very small number of serious reactions following pertussis vaccination, and the ways by which even this minute fraction of unhappy endings among all the army of protected children might have been avoided.

TOOMEY, J. A. Reactions to Pertussis Vaccine. J.A.M.A. 139, 7:448 (Feb. 12), 1949.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Luis Alverez, Jr., M.D., 1441 Fernandez Juncos Ave., Santurce, P. R., Director of Public Health Unit, Catano, P. R.

Capt. M. J. Aston, (MC) USN, Naval Medical School, Bethesda 14, Md., Medical Officer in Command

Ann McAvoy Birch, M.D., 749 Washington St., New York 14, N. Y., Health Officer-in-Training, City Health Dept.

Charles A. Bourdon, M.D., M.P.H., 775 Gosford St., City Mall Annex, Montreal 1, Que., Canada, Special Officer and Chief of Health Districts, City Health Dept.

Charles E. Brenn, M.D., 227½ West 4th St., Owensboro, Ky., Health Officer, Owensboro-Daviess County Health Dept.

George M. Brother, M.D., M.P.H., 1098 West Michigan St., Indianapolis 7, Ind., Director of Preventive Medicine, State Board of Health

Dorothy B. Chamberlin, M.D., Housatonic, Mass., Apprentice Epidemiologist, New York State Health Dept.

Tracy Jones, M.D., 620 South Third, Louisville 2, Ky., Asst. State Health Commissioner, State Dept. of Health

Leo A. Kaprio, M.D., M.P.H., Abrahams St. 15 b A 11, Helsinki, Finland, Health Officer, Province of Uusimaa Health Dept.

M. Catherine Magee, M.D., 132 E. 45th St., New York 17, N. Y., Candidate for M.P.H., Columbia Univ. School of Public Health

G. P. Morison, M.D., Professional Bldg., Charlestown, W. Va., Director, Tri-County Health Dept.

Thomas R. Perdue, M.D., 1606 Linwood, Parsons, Kans., Asst. Health Officer, Labette County Health Dept.

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H. F. Wilkins, D.V.M., Capital Station, Helena, Mont., State Veterinarian of Montana

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Ruth Taylor, Municipal Hospital, Pittsburgh 13, Pa., Hospital Manager, City Dept. of Public Health

Edwin G. Williams, M.D., D.T.M., U. S. Public Health Service, Washington 25, D. C., Chief, Office of Radiological Health

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ENGINEERING SECTION PROJECT CONTINUED FOR 1949

In 1946, under the impetus of the Engineering Section Council, a special project was established under the title Engineering Section Project. The purpose of the Project, briefly, was to explore ways by which wider use of properly trained engineers and sanitarians could be obtained, and what type of training was desirable for the various types of specialists employed in the environmental sanitation field. The Project had as another goal that of citing administrative techniques, procedures and programs in the field of interest of the Engineering Section. Sufficient funds for a two year project were obtained from the National Foundation for Infantile Paralysis and a group of sanitary engineering manufacturing industries. During 1947 and 1948, the Project has been carried on with enthusiasm under the advice of the Engineering Section Council and a specially formed advisory committee representing the Standing Committees of the Association and the Engineering Section. William T. Ingram has served as the Engineering Field Associate carrying on the Project.

Much has been done in achieving the original goals of the Project, so it is with a great deal of satisfaction that we announce the continuation of the Project through 1949 through

funds generously made available from

The National Sanitation Foundation
The American Can Company
Wallace & Tiernan Co., Inc.

In addition, funds have been made available from the National Security Resources Board for the Preparation, by the Engineering Section Project, of a roster of engineering personnel. Other activities of the Project during 1949 will center around consultation with various universities on course content for engineers and sanitarians; establishment of short courses for the training of water works, sewage plant, and food handling personnel. In addition, a great deal of time will be spent in establishing and supervising a research project in administrative procedures made possible by a grant through the U. S. Public Health Service.

PROGRESS OF THE MERIT SYSTEM SERVICE, A.P.H.A.

As of February 1, 1949, the Merit System Service reports that 523 examinations have been prepared and used by 37 states in the following fields of public health: environmental sanitation, health education, laboratory, medical social work, medicine and public health, nursing and public health nursing, nutrition, and vital statistics.

In addition, 8 cities have used 11 examinations for public health positions and 20 programs of study in public health nursing and 11 visiting nurse associations have used the guidance tests for students and staff nurses. Two schools of engineering have used student tests and a licensing examination for health officers and inspectors has been provided in New Jersey.

Examinations are in preparation in several new areas: pharmacy, veterinary medicine, psychology, hospital nursing positions (consultant level), and dietetics.

New consultants who have joined the staff within the past year are:

Agnes Landis, Ph.D. (Psychology), Clinical Psychologist, Director of Research, Regional Office, Veterans Administration, Brooklyn, N. Y.

Catherine Leamy (Nutrition), Regional Nutrition Consultant, Children's Bureau, New York, N. Y.

Leonora B. Rubinow (Medical Social Work), Newark, N. J.

Alexander Zeissig, D.V.M. (Veterinary Medicine), Veterinary Consultant, Division of Medical Science, New York State Health Department, Albany, N. Y.

There are now approximately 22,800 examination questions in the Merit System files, which have been constructed by 373 writers and reviewed by 559 persons representing the respective professional fields. The writers and reviewers are distributed geographically throughout the country to insure representative opinion and prevent overweighting with urban or eastern interests.

In coöperation with the Public Health Service, the Merit System, during the past two years, has constructed 43 examinations for surgeons, nurses, sanitary engineers, pharmacists, and dietitians in the Division of Commissioned Officers. Promotional examinations for surgeons and nurses are now in the planning stage, as are entrance examinations for veterinarians, dentists, psychologists, and twenty other scientific specialties.

A.P.H.A. membership application blank on page LIII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Sanitarian for City-County Health Department. Generalized program. State qualifications and salary expected. Travel allowance 8¢ a mile. Retirement plan, sick leave, vacation. Write: City-County Health Dept., Safety Bldg., Eau Claire, Wisc.

Two Staff Nurses for generalized Public Health Nursing Program adjacent Washington, D. C. Three weeks paid vacation, sick leave, 40 hour week, merit salary increases, opportunity to attend universities part time in Washington. Must own car. Write: Personnel Director, Arlington Court House, Arlington, Va.

Physician Public Health Officer—A limited number of vacancies for Public Health Officers with Military Government in Japan are open. These involve supervision of Japanese Prefecture (State) Health Departments in all phases of public health programs. Excellent opportunity for broad experience in public health under two year contract, renewable if desired. Salary $6,858, free housing for health officer and family plus free transportation to and from Japan. For details and application form write: Chief, Public Health and Welfare Section, GHQ, SCAP, APO 500, % Postmaster, San Francisco, Calif.

Health Officers for positions in State District Offices. Excellent retirement system and Civil Service. Write: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Dentist—Full-time, to serve as dental clinician in a rural school dental health program. Salary $5,000 per annum. Appointee will operate a modern, well equipped mobile dental unit. Write: S. D. Sturkie, M.D., Director, Joint Health Department, Charlottesville, Va.

Educational Director for voluntary nursing agency, generalized program; undergraduate and graduate students accepted for field experience; interesting opportunity for beginner in educational field. B.S. degree and supervisory experience required. Write: **Box A-51**, Employment Service, A.P.H.A.

Dentist for Children's Operative Clinics in the Cincinnati Schools, half-time, five days per week. Minimum annual salary full-time, $3,954, maximum, $4,754; vacation with pay; sick leave and retirement; license to practise in Ohio necessary. Write: Dr. E. H. Jones, 530 Provident Bank Bldg., Cincinnati, Ohio.

Supervising Public Health Nurse, present salary range $291.75 to $361.75 plus car allowance; automatic increases; cost-of-living salary adjustments semi-annually. Application for examination may be obtained by writing to: Personnel Division, City Hall, Madison 3, Wisc.

Assistant Health Officer. Opportunity for young physician in large county; generalized program with emphasis on tuberculosis control. Previous experience and training desirable but not essential. Salary $7,000 to $7,500 plus car allowance and official expenses. Write: **Box A-52**, Employment Service, A.P.H.A.

Public Health Nurses for a well established, generalized program, including school health, in a partly rural California county with a population of about 65,000. Present salaries: Junior grade, $2,640–$3,216; Senior grade, $2,916–$3,540. Probable general increase soon. Car needed; travel allowance 6¢ per mile; vacation, sick leave, all legal holidays, 38 hour week, merit system being established. Write: Health Officer, Box 360, San Luis Obispo, Calif.

Director of Health Education, in a rural and urban County Health Department adjacent to Washington, D. C. To conduct a broad and general Public Health Program in close integration with voluntary health organizations. Write: Montgomery County Civil Service Commissioner, Old Court House Bldg., Rockville, Md.

Chief Medical Officer: Extensive, diversified, well established medical, public health and sanitation two-government cooperative program in urban and rural

areas in Bolivia, requires licensed physician with graduate training plus a minimum of 5 years' full-time experience in public health work. Age, under 60. Married or single. Total remuneration range $10,518 to $13,761 per annum. Minimum desirable period service 2 years. English speaking colleagues. Transportation provided for employee and dependents. Write: Director, Health and Sanitation Division, Institute of Inter-American Affairs, 499 Pennsylvania Ave., Washington 25, D. C.

Physician as Director City-County Health Department, population 56,000; staff of 14; ideal offices and laboratory. Salary for man with degree in public health $9,000 plus 8¢ per mile travel. Write: City-County Health Department, Safety Bldg., Eau Claire, Wisc.

Tuberculosis Control Director for State Department of Health; salary range $6,480–7,440. Some administrative experience in Tb Control work required, also graduation from an approved school of medicine; one year internship; eligibility for an Arizona license and two years' experience in public health work or graduate study in public health. Write: J. P. Ward, M.D., Director, State Dept. of Health, Phoenix, Ariz.

Public Health Nurse: For generalized program including school service. Staff of 40 nurses. Completion of accredited course in public health nursing required. County car or 7¢ per mile for personal car. Beginning salary $2,940 per annum. Merit system, five day week, good personnel policies.

Physician: Training and experience in Public Health required. County car or 7¢ per mile for personal car. Beginning salary $5,700 per annum, maximum salary $7,140. Merit system, 40 hour week, good personnel policies.

Public Health Laboratory Technician: Opening in a modern, well equipped laboratory requiring professional training and experience. Staff of 12 technicians under direction of M.D. Entrance salary $3,540 per annum. Merit system, 40 hour week, good personnel policies.

Write: (three above positions) Kern County Personnel Department, Rm. 108 Court House, Bakersfield, Calif.

Food Sanitarian for large County Health Department, both rural and urban population of approximately 130,000. Should have B.S. in biological science or chemistry, as well as one year's experience in food sanitation with a full-time local health department. Salary $3,600. Must have car, mileage reimbursed on a sliding scale. Write: Director, Will County Health Department, 21 E. Van Buren St., Joliet, Ill. Include snapshot and short history in first letter.

Public Health Staff Nurses—Beginning salary $2,760 plus $900 maximum travel allowance. Consideration will be given for training and experience. Liberal vacation and sick leave. Ottawa County is located near a large city with many cultural interests and opportunities for advanced education. Population both rural and urban approximately 70,000. Write: Director, Ottawa County Health Department, Court House, Grand Haven, Mich.

Assistant Sanitarian for city and county generalized program with emphasis on food and milk sanitation. Degree, training and experience required. Beginning salary $3,000 or more according to experience plus $900 maximum travel allowance. Retirement plan, sick leave and liberal vacation. Write: Director, Ottawa County Health Department, Court House, Grand Haven, Mich.

Supervising Public Health Nurse for modern generalized nursing program. Minimum requirements, public health certificate or one year of graduate study in public health nursing. Salary range $278 to $318; 40 hour week; retirement plan; sick leave. Write: Charles A. Neafie, M.D., Director, Department of Public Health, Pontiac 15, Mich.

Public Health Nurses for generalized nursing program, salary range $265–$285 per month; 40 hour week; vacation and sick leave; car furnished. Write: Director of Public Health Nursing, 504 County-City Bldg., Seattle 4, Wash.

Public Health Engineer or experienced and well trained Sanitarian to plan and conduct a municipal program in Public Health Sanitation, with emphasis on insect, food and milk control, in city of about 15,000. Prefer resident of southeastern states. Write: Box 146, Hartsville, S. C., Commissioner of Health.

Dentist to operate a mobile dental unit in rural sections. Opening available May 1. Starting salary $4,500 plus liberal travelling allowance. Write Box A-53, Employment Service, A.P.H.A.

Health Educator for Department of Public Health and Preventive Medicine at western medical school. Rank of Instructor or Assistant Professor. M.P.H. or Master's Degree in Public Health Education and at least 5 years' experience required, preferably including teaching experience. Duties will consist mainly of teaching and consultation. Write Box A-54, Employment Service, A.P.H.A.

Announcements

United States Civil Service Commission, Washington, D. C.

Examination for Industrial Hygienist

Applications are now being accepted for an Industrial Hygienist examination which has been announced to fill positions in various field activities of the Navy Department, and in other federal agencies, in Washington, D. C., and throughout the United States. Salaries range from $3,727 to $6,235 a year.

For further information see Announcement No. 4-34-1 (1949) at any first- or second-class post office, where the necessary application forms may also be obtained. Applications will be accepted until further notice, and must be filed with the Executive Secretary, Board of U. S. Civil Service Examiners for Scientific and Technical Personnel of the Potomac River Naval Command, Bldg. 37, Naval Research Laboratory, Washington 25, D. C.

California State Personnel Board

Examinations for Assistant Sanitary Engineer and Associate Sanitary Engineer

The California State Personnel Board announces nation-wide examinations for Assistant Sanitary Engineer and Associate Sanitary Engineer for May 21, 1949. Positions will be available with the Bureau of Sanitary Engineering of the California Department of Public Health. At least two years of sanitary engineering experience and graduation from college in sanitary or public health engineering is required. Salary for the Assistant Sanitary Engineer is $341 to $415 a month; for the Associate Sanitary Engineer, $415 to $505 a month.

Applications for the May examination must be filed on or prior to April 30, 1949. Address inquiries to: Recruitment Section, California State Personnel Board, 107 State Building, San Francisco 2, Calif.

United States Public Health Service

Regular Corps Examination for Medical Officers

A competitive examination for appointment of Medical Officers in the Regular Corps of the U. S. Public Health Service will be held on May 3, 4, and 5, 1949, at various points throughout the United States.

Appointments are permanent in nature and provide opportunities for a lifetime career in clinical medicine, research, and public health at Marine Hospitals and other Public Health Service facilities.

Appointments will be made in the grades of Assistant Surgeon (1st Lt.) and Senior Assistant Surgeon (Captain). Entrance pay for an Assistant Surgeon with dependents is $5,011 a year; for Senior Assistant Surgeon $5,689. Provisions are made for promotions at regular intervals up to and including the grade of Senior Surgeon (Lt. Colonel) and for selection for promotion to the grade of Medical Director (Colonel) at $9,751 per annum. All applicants must be United States citizens of at least 21 years of age, and possess a diploma of graduation from a recognized school of medicine.

Additional information and application forms may be obtained by writing to the: Surgeon General, U. S. Public Health Service, Washington 25, D. C., Division of Commissioned Officers. Completed applications must be received by April 14, 1949.

POSITIONS WANTED

Medical Administrator — experienced county health officer, M.P.H. (Columbia), age 38, wants more responsible position with larger salary, as director county or city unit, or voluntary agency. Previous training and experience in hospitals, private practice, army preventive medicine, industry. Write: **Box C-10,** Employment Service, A.P.H.A.

Health Educator—M.P.H., male, single. 19 years of formal education including half year study of public health in Sweden. Army experience in environmental and personal hygiene, counseling, communicable diseases. Basic teaching and A.P.H.A. field work requirements satisfied. Interested in school and public health education, mental health and alcoholism. Write: **Box HE-11,** Employment Service, A.P.H.A.

Sanitary Engineer, B.S. M.C.E. 35 years; 12 years experience including work in large eastern city health department; Corps of Engineers, Sanitary Corps, U. S. Army; Sanitary Engineer in charge in large federal agency. Design and opera-

tion experience in all phases. Professional Engineering license, New York State. Write: Box E-8, Employment Service, A.P.H.A.

Sanitary Engineer, B.S. in Chemistry; age 30; 5 years field experience in sanitary engineering; 4 years office design experience. Interested in position in public health as sanitary engineer involving responsibility with industry or official agency. Write: Box E-9, Employment Service, A.P.H.A.

Veterinarian, 26, single, M.P.H. (Michigan) advanced work in bacteriology and parasitology; experience in animal disease control, milk and food sanitation, private practice. Interested in position in official agency, industry or laboratory in the United States or overseas. Write Box V-7, Employment Service, A.P.H.A.

Industrial Hygienist, M.S. in industrial hygiene expected in May including training in engineering and laboratory technics and occupational disease aspects of industrial hygiene. Experience (one year) in environmental sanitation program in metropolitan health department. Write Box I-H-2, Employment Service, A.P.H.A.

Bacteriologist—Ph.D. (June, 1949). Interested in academic, industrial, or public health opening preferably in the Northeast. Three years research on quaternary ammonium germicides. Age 28, married, veteran. Write: Box LD-3, Employment Service, A.P.H.A.

Dentist, male, 30 years old, M.P.H. expected in June; 5 years experience clinical and public health experience (civilian and in U. S. Army). Interested in administrative or part-time clinical opening in U. S. or overseas. Write: Box D-4, Employment Service, A.P.H.A.

Annual Service Plan for Public Health Examinations

A quarter of the states of the Union are now members of the Annual Service Plan of the Merit System Service and the first county (Nassau County, New York) joined in March. The states are: Colorado, Idaho, Illinois, Kentucky, Maine, Maryland, Mississippi, New Hampshire, New Jersey, North Dakota, Oklahoma, and Vermont.

Under this plan, which was initiated in 1948 and has been approved by the Public Health Service, the Children's Bureau, and the Executive Board of the Association, and has been heartily endorsed by the Association of State and Territorial Health Officers, an unlimited number of standard examinations are provided to an agency at an annual service fee including all positions for which the Merit System Service has such examinations available. New subject-matter areas are constantly being added as need arises. Other benefits in terms of aids in personnel administration go to members of the plan, and it is expected that many of the 37 states which have already used the Service will join the plan by July 1.

Information regarding the benefits of joining the plan and the cost may be secured from the Merit System Service.

The plan is also open to municipal and county civil service agencies.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Public health physician to direct well established program, South American country; English speaking colleagues; $10,000–$13,000, transportation for self, dependents. (b) Dentist experienced in public health dentistry; regional consultant position; South. (c) Public health physician to direct division of geriatrics and adult hygiene; metropolitan health department. (d) Professor of preventive medicine; should be qualified to teach preventive medicine and public health with a primary emphasis on preventive medical aspects; East. (e) Woman physician to direct student health program; approximately 1,000 women students and faculty members; $5,000, maintenance. (f) Director, maternal and child health and crippled children's services; state health department; West. (g) Student health physician; liberal arts college; California. (h) Director, city-county health department; staff of fourteen; town of 45,000; Middle West. PH4-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Coördinator of training; state health department; Master's desirable; $5,000. (b) Sanitary engineers, public health engineers, and specialists in fields of malaria and insect control; positions of considerable responsibility; South America. (c) Health educator; state division of national organization; New England. (d) Sanitary chemist; qualified to conduct lake pollution investigation; laboratories of state university; Middle West. (e) Public health engineer; state department; Middle West. (f) Health educator to join faculty, university department of health; rank: instructorship ($4,200–$5,000) or assistant professor ($4,800–$5,600). PH4-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Director; newly established visiting nurse association; vicinity New York City; $4,000. (b) Director of public health nursing; state department; headquarters in college town; West; $4,800. (c) Educational director; visiting nurse service; South. (d) Assistant professor of public health nursing; eastern university. (e) Maternal and child health nursing consultant; West; $4,000. (f) Supervisors and staff nurses; newly established city-county health department; Middle West. (g) Supervisor; generalized program, including tuberculosis division, school program; university town, California. (h) Supervisor; nursing staff, municipal health department, Chicago area; $4,500. (i) Supervisor of nurses; public school system; 16,000 children; staff of fourteen nurses; Middle West. PH4-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health physician; Master's in Public Health, eight years, administrative health officer, principally in rural areas; five years, director, metropolitan health department; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health dentist; D.D.S., M.S.D. (Children's Dentistry), M.P.H. (Public Health); several years, teaching experience; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; M.S. (Sanitary Engineering); eleven years, Division of Industrial Health, state department of health, five years as assistant director and six as director; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health Educator; M.P.H., Harvard; four years, statistician; eight years, health educator, state health department; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse; B.S. (Public Health Nursing); four years, school nurse; seven years, supervisor, metropolitan health department; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

THE AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH, INC.
DIGEST OF REQUIREMENTS FOR CERTIFICATION OF PHYSICIANS

As previously announced in the *American Journal of Public Health* (March, 1949, p. 426), the American Board of Preventive Medicine and Public Health, Inc., has been set up, with representation from the American Medical Association, the American Public Health Association, the Canadian Public Health Association, the Southern Medical Association, and the Association of Schools of Public Health.

The Board was created in accordance with action of the Advisory Board for Medical Specialties and was approved by the Council on Medical Education and Hospitals of the American Medical Association in February, 1949. The principal purposes of the Board as defined in the articles of incorporation are:

1. To encourage the study, improve the practice, elevate the standards, and advance the cause of preventive medicine and public health.
2. To grant and issue to physicians duly licensed by law to practise medicine Certificates of special knowledge in preventive medicine and public health.

Requirements for Certification

General Qualifications

1. Moral and ethical standing in the profession satisfactory to the Board.
2. Graduation from a medical school in the United States or Canada approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign medical school satisfactory to the Board.
3. An interneship of at least one year in a hospital approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the Board.
4. Licensure to practise medicine in the United States or the Dominion of Canada.
5. Special training in preventive medicine or public health which shall include:
   A. A period after interneship of not less than six years of special training, teaching, or practice in preventive medicine and public health which must include B and C.
   B. Successful completion of at least one academic year of graduate study leading to the degree of Master of Public Health, or an equivalent degree or diploma, or an equivalent satisfactory to the Board.
   C. Field training or residency of at least two years of field experience in general public health practice, which included planned instruction, observation and active participation in a comprehensive, organized, public health program, one year of which may be an approved clinical residency in a field directly related to public health.
6. Limitation of practice to teaching or practice of preventive medicine or public health as a specialty.

The Founders Group

The By-Laws authorize the Board for a period of time ending July 1, 1950, to excuse from examination practitioners of preventive medicine or public health who have attained unquestioned eminence in the field.

Examinations

Examinations will be held from time to time and in various places depending upon need as indicated by applications received. It is expected that examinations will be held primarily in connection with the meetings of the American Public Health Association. The examination will consist of two parts:

Part one to consist of a comprehensive written examination designed to test the knowledge of the applicant in the general field of preventive medicine and public health. These examinations will

be announced at least sixty days prior to the holding of the examinations. The written examination will be confined to one day. Part two to consist of the oral or practical examination which will be held on the day following the written examination. This examination will be held before two to four examiners, members of the Board or associate examiners. An endeavor will be made to adapt the details of the oral examination to each candidate's experience and practice. The examiners will report orally upon each candidate to the assembled Board, after which the results of the examination will be considered jointly by the entire Board and the examiners. Final action of the Board will be based upon the candidate's ethical and professional record, training, and attainments as well as on the results of his formal examination.

Applications

Applications which must be on prescribed application forms are to be filed with the Secretary not less than 90 days prior to the date of examination.

Fees

The Board is incorporated as a nonprofit corporation and no member of the Board may receive any compensation. Minimum fees are specified, consistent with the cost of examination and certification. The total cost to the applicant is $50.00.

Application fee $15.00

No application can be considered for classification and action by the eligibility committee unless accompanied by the application fee. The application fee is not refundable.

Certification fee $35.00

This fee is payable when the candidate is notified of acceptance for examination or as a member of the Founder's Group. It is not returnable after the candidate has been officially accepted and notified by the eligibility committee to report for examination.

Certification

Upon satisfactory completion of the examinations or, in the case of the Founder's Group, upon the affirmative vote of the Board, a certificate will be issued to the effect that the person named has been found to be possessed of special knowledge in preventive medicine and public health. This certificate will be signed by the officers of the Board and shall have its seal affixed. Each certificate shall remain the property of the corporation, but each person to whom a certificate is issued shall be entitled to its possession until revoked. Any certificate issued by the Board may be revoked if evidence, satisfactory to the Board, is presented that the applicant was not eligible at the time of application, or made any missstatement or misrepresentation of facts or that his license to practise medicine has been suspended or revoked.

Persons desiring further information should communicate with the Secretary of the Board, Dr. Ernest L. Stebbins, 615 N. Wolfe Street, Baltimore, Md.

NOTE: Applications to be considered by the American Board of Preventive Medicine and Public Health close 90 days before the announced dates of the examination instead of 60 days as stated in the news item, page 426, *A.J.P.H.*, March, 1949.

AMA OFFERS A PUBLIC HEALTH PLAN

The American Medical Association in mid-February announced a 12 point program for the advancement of medicine and public health. In summary the points are:

1. A federal department of health of cabinet status with a physician as secretary, and coördination in this department of all federal health activities except those of the armed forces.
2. Promotion of medical research through a national science foundation with research grants to private agencies having suitable staffs and facilities.
3. Further development of voluntary hospital and medical care plans, particularly in rural areas, with state aid for including the medically indigent in such programs.

4. A state medical care authority in each state, with proper medical and consumer representation, to receive and administer funds.

5. Acceleration of development of facilities in rural areas under the Hospital Construction Act.

6. Establishment of local public health units to provide communicable disease control, vital statistics, environmental sanitation, venereal disease control, maternal and child hygiene, and public health laboratory services. Salaries to health officials commensurate with their responsibility.

7. Development of a mental hygiene program.

8. Development of health education programs through suitable state and local agencies.

9. Provision of facilities for care and rehabilitation of the aged and those with chronic diseases and other groups not presently cared for.

10. Integration of veterans' medical care with other medical care programs.

11. Greater emphasis on industrial medicine and increased safeguards against highway, home, and farm accidents.

12. Adequate support, without political interference, of medical, dental, nursing and other institutions training necessary specialized personnel for the provision and distribution of medical care.

WHO STRUCTURE

Since the World Health Organization was established as a specialized agency of the UN on September 1, 1948, its structure has been developed, and up to January, 1949, a secretariat of 255 persons were selected. Of these, 194 are in the headquarters office in Geneva, 29 in the New York Office, and 32 in the field.

The Special Assistant to the Director-General, Dr. Brock Chisholm, is Dr. W. Forrest of the United Kingdom. Dr. R. Gautier of Switzerland and Dr. N. Goodman of the United Kingdom respectively are directors of the two main departments of the headquarters office, the department of technical services, and the department of operations. The director of the division of epidemiology in the department of technical services is Dr. Y. Biraud of France.

The director of the South-East Asia regional office in Delhi is Dr. C. Mani of India. The epidemiological intelligence station in Singapore is directed by Dr. P. M. Kaul, also of India. The liaison office in New York is directed by Dr. Frank Calderone of the United States with the assistance of Dr. I. C. Fang of China.

INTERSTATE COÖPERATION IN MEDICAL EDUCATION

The presidential address of Florence Sabin, M.D., at the 1948 meeting of the Western Branch, A.P.H.A., included a reference to the possibility of interstate coöperation by the 8 Rocky Mountain and Inter-mountain States in medical and public health education. (See *A.J.P.H.*, Nov., 1948, p. 1510.)

In further exploration of such a plan there was held in Denver in December, 1948, at the invitation of the governors of Colorado, New Mexico, Utah, and Wyoming, a Mountain States Governors' Conference on Education for Health Services. In the eight Rocky Mountain and Inter-mountain states there are only two medical schools, one in Denver and the other in Salt Lake City; there is only one veterinary school, at Fort Collins, Colo., and no dental school whatever. The Conference met to consider whether under the American system of government states may find a way to coöperate in solving such a problem.

The professional schools already established are finding it difficult to procure adequate support for such expensive forms of education based on the relatively sparse populations of the western states. The states without professional schools find it hard to place their students because the cost of such education is far beyond the tuition charged. For example, medical education costs about $3,000 per student per year.

State constitutions do not permit the allotting of funds for an institution in another state. Therefore, Dr. Ward

Darley, Director of the University of Colorado Medical Center, offered for discussion a plan whereby states without professional schools might grant to their own universities funds to be used by them to pay the full cost of medical education (in the widest sense) for their own students, selected by them with the advice of a member of the admissions committee of a university maintaining a professional school.

The legal implications of this proposal are now being explored as well as the further point as to whether it is necessary to secure a federal enabling act.

NEW MEN ON MEDICAL AID TO CHINA BOARD

Ten new members were recently elected to the 70 man board of directors of the American Bureau for Medical Aid to China. They are Drs.:

Ira V. Hiscock, Chairman, Yale University Department of Public Health
P. Z. King, Chief Medical Advisor, United Nations' International Children's Emergency Fund and former Chinese Vice Minister of Health
H. Dabney Kerr, head, Department of Radiology, University of Iowa, former roentgenologist, Peking Union Medical College
John McK. Mitchell, Dean, University of Pennsylvania Medical School, Executive Officer, 20th General Hospital, Assam, in World War II
J. Howard Mueller, Professor of Bacteriology and Immunology, Harvard Medical School
Wade W. Oliver, Associate Director, Medical Sciences, Rockefeller Foundation
Walter S. Root, Professor of Physiology, College of Physicians and Surgeons, Columbia University
Douglas H. Sprunt, University of Tennessee Institute of Pathology
Ernest L. Stebbins, Director, Johns Hopkins School of Hygiene and Public Health
A. A. Weech, Medical Director, Children's Hospital, Cincinnati, former head, Pediatrics, Peking Union Medical College

FIRST HILL BURTON HEALTH CENTER

The first of 63 public health centers in the United States approved to date for federal aid under the national hospital program was dedicated and opened to the public in Birmingham, Ala., January 27. The building will house offices of the Jefferson County Board of Health, Alabama state laboratories and voluntary agencies, such as the local branches of the tuberculosis association, the American Cancer Society, the National Foundation for Infantile Paralysis, and Visiting Nurses Association.

ARCTIC HEALTH INSTITUTE PROPOSED FOR ALASKA

A resolution was recently introduced into the U. S. Congress requesting a $7,775,000 appropriation for construction in Alaska of an Arctic Health Institute to be located in connection with the University of Alaska at Fairbanks.

The proposed institute is designed for research in all phases of medicine and biology relating to maintenance of health in Arctic and Sub-Arctic Regions. Such problems as the adaptation of housing design and materials for economical use in areas of prolonged low temperature, the development of effective and practical methods for providing safe water supplies at sub-zero temperatures, and methods of safe disposal of human wastes in permafrost areas where ground is permanently frozen during the greater part of the year will be included.

According to the announcement of the Alaska Department of Health, the program of research in Arctic health problems is now under way under the auspices of the recently established U. S. Public Health Service Field Station at Anchorage where studies are planned in the fields of physiology, bacteriology, nutrition, sanitation, and animal diseases.

FELLOWSHIPS IN COMMUNITY NUTRITION

The College of Home Economics of

the University of Tennessee offers several graduate fellowships in Community Nutrition, covering tuition and a stipend of $1,200 for a 12 month period. The program trains candidates for positions as nutritionists with health and welfare agencies and leads to the degree of Master of Science in Community Nutrition. Three quarters of work in residence at the university and one quarter of supervised field work in a health agency are required.

Candidates must have a baccalaureate degree in home economics with a major in foods and nutrition, or its equivalent, and 2 years of experience in teaching, extension work, Farmers Home Agency work, hospital or other food service, or equivalent. Interests and ability of the candidate are further considerations in accepting students for training.

Application blanks and further information may be obtained from the College of Home Economics, the University of Tennessee, Knoxville.

AGE AND DIET

The National Dairy Council has made available reprints of two articles dealing with nutrition as it affects later life. Reprinted from the *Journal of the American Dietetic Association,* they are: Nutritional Status of Older Women, and Dietary Practices of 100 Women 40 to 75 Years of Age. They are the reports of a research project carried on at Michigan State College with the support of the National Dairy Council.

These reprints are available from the National Dairy Council, 111 North Canal St., Chicago 6.

FEDERAL HEALTH GRANTS, CANADA AND THE UNITED STATES

The Canadian National Government appropriates about twice as much for local health services as the United States Government. This is the conclusion of an article, illustrated with pictographs, in the September issue of *Canada's Health & Welfare.*

Of 8 separate areas of health, for only 3 are the Canadian per capita federal grants to provinces less than the United States grants to states—venereal disease, crippled children, and public health research. In all others including general public health, the per capita grants are from 2 to 16 times as large. The greatest discrepancy is in mental health activities where the United States grants to states average 2 cents per capita, those of Canada to the provinces 32 cents.

NATIONAL ADVISORY HEALTH COUNCIL

The current members of the National Advisory Health Council, an advisory body to the U. S. Public Health Service, are as follows:

Term expiring 1949

Ernest E. Irons, M.D., Professor of Medicine, University of Illinois Medical School
William C. Rose, Ph.D., Professor of Chemistry, University of Illinois

Term expiring 1950

Edwin B. Fred, Ph.D., President, University of Wisconsin
Karl F. Meyer, M.D., Director, Hooper Foundation for Medical Research, University of California, San Francisco

Term expiring 1951

George Baehr, M.D., President, Medical Board, Mt. Sinai Hospital, New York
Francis G. Blake, M.D., Sterling Professor of Medicine, Yale Medical School

Term expiring 1952

Reuben G. Gustavson, Ph.D., President, University of Nebraska
Hugh Morgan, M.D., Professor of Medicine, Vanderbilt University

Term expiring 1954

Wilton L. Halverson, M.D., Director, California State Department of Public Health
Thorndike Saville, D.Eng., Dean, College of Engineering, New York University

The four ex-officio members are:

Captain W. Babione (M.C.), U.S.N., Director, Preventive Medicine Division, Navy Department
Assistant Surgeon General R. E. Dyer,

Director, National Institutes of Health
Col. Don Longfellow, M.C., U.S.A., Chief, Preventive Medicine Division, Department of the Army
Harry W. Schoening, Assistant Chief, Bureau of Animal Industry, U. S. Department of Agriculture

LABORATORY IN GROUP DEVELOPMENT

The National Training Laboratory in Group Development will hold its third summer session at Gould Academy, Bethel, Me., June 19–July 8, 1949. The Laboratory is sponsored by the Division of Adult Education Services of the National Education Association and the Research Center for Group Dynamics of the University of Michigan, and with the coöperation of certain other universities. The Laboratory provides opportunity for action leaders, trainers, educators, and social scientists to explore, in a laboratory situation, basic concepts and skills of group growth and group leadership and membership. Further information from Leland P. Bradford, Director, Division of Adult Education Services, NEA, 1201 Sixteenth Street, N.W., Washington 6, D. C.

CLAIR E. TURNER TO IRAN

Clair E. Turner, Dr.P.H., Assistant to the President of the National Foundation for Infantile Paralysis, with a group of specialists in other fields, is making a Public Health Survey in Iran. These experts were sent to Iran by Overseas Consultants under a contract with the Iranian Government.

LEBANON'S FIRST PUBLIC HEALTH EXHIBIT

The American University in Beirut recently initiated an annual Health Week in Lebanon. One of its features was the first public health exhibit ever seen in Lebanon. The exhibit consisted of 40 large panels showing the way disease germs are transmitted. The exhibit was based on the vital need for an enlarged program of public education about the ways through which a healthy body becomes diseased. This need was reported after a sanitary survey of conditions made by a graduate of the University Medical School, Dr. Zeken Shakhashiri, who is now studying at the Johns Hopkins Medical School.

Another aspect of the growing interest in public health was the recent organization of the Lebanese Public Health Association.

CANCER FILM TEACHING "PACKAGE"

A motion picture teaching film, "Cancer: The Problem of Early Diagnosis," is the first in a series of six planned for the next two years for professional audiences. Produced by Audio Productions under the joint sponsorship of the American Cancer Society and the National Cancer Institute, it emphasizes the importance that early suspicion, accurate diagnosis, and effective treatment hold in cancer control.

Prints for single showings may be had from state cancer society officers and state health departments. The film may be purchased for $150 from Audio Productions Inc., 630 Ninth Avenue, New York 19.

BIBLIOGRAPHY ON PLUMBING AND PUBLIC HEALTH

The U. S. Public Health Service has recently made available a revised bibliography on, *Plumbing and Public Health*. It includes items up to July 1, 1948 and replaces the previous bibliography published in 1940. Copies may be obtained from the U. S. Public Health Service, Division of Sanitation, Washington, D. C.

A.M.A. RURAL HEALTH CONFERENCE

The 4th annual rural health conference of the American Medical Association in Chicago on February 4 and 5 was attended by nearly 500 persons, representing farm organizations, state

and federal extension services, agricultural colleges, and allied health agencies. Papers and round table discussions were related to five sections—coöperative health programs for rural areas, environmental hazards, health education, individual and community responsibility, the general practitioner in rural practice, and nutrition and the soil.

The first section recommended that the National Conference on Rural Health go on record as urging that every local area establish a voluntary overall coördinating health agency such as a health council or health committee.

It further recommended complete coverage of the nation with full-time local health units in the belief that this is fundamental to the effective functioning of all health programs.

One of the primary objectives of a health council may well be the attainment of local health units where they do not exist and the strengthening of existing ones.

This section was in agreement with the present efforts of state and territorial health officers, the National Congress of Parents and Teachers, and many other national organizations in supporting, in principle, legislation designed to attain the objectives of full-time local health units coverage for the nation.

The entire Conference adopted an 11 point program of coördination and utilization of existing lay and professional facilities through the following media:

"(1) State and public health services for general community hygiene and communicable disease control; public health nursing, well-baby conferences and clinics.

"(2) The Hill-Burton Hospital Construction Act operating where a community desires such facilities.

"(3) Medical scholarships provided by medical associations, farm bureaus and through legislative appropriations for medical and nursing education to candidates agreeing to practice in rural areas.

"(4) Agricultural school extension services for health education.

"(5) Parent-teacher associations where they encourage school children examinations for hearing, sight, heart, hernia, immunization, school hygiene, as well as physical education.

"(6) Special health groups such as tuberculosis, polio, cancer, heart.

"(7) The application of voluntary prepaid medical and hospital care plans to rural communities.

"(8) Promotion of state and county health councils, the medical profession acting cooperatively with other groups for health education and health activities of local character.

"(9) A plan to bring the medically indigent, or low income, farmer into voluntary prepaid medical plans, which may involve state financial aid.

"(10) Use of the health education programs of farm groups.

"(11) Encouragement of the civilian population, as distinguished from governmental official action, to help itself."

MINNESOTA NUTRITION COUNCIL SEEKS TO CONTINUE FLOUR ENRICHMENT

The Minnesota State Nutrition Council is actively supporting the passage of a bill in the State Legislature to require the enrichment of flour and bread sold within the state in accordance with the standards established by the Federal War Emergency Legislation. Mrs. F. N. Christofferson is Co-Chairman of the Legislative Committee of the Minnesota State Nutrition Council, St. Paul, and Mrs. Helen E. Hughes is Corresponding Secretary.

The American Public Health Association's Governing Council declared October 4, 1944 (*A.J.P.H.*, Dec. 1944, page 1298) that the enrichment of staple food stuffs during the war through federal, state, and voluntary action has resulted in an improvement in the national dietary with respect to several highly essential nutrient elements. The Governing Council pointed out that this enrichment in staple low cost foods has been of proportionately greater benefit to the economic groups whose diet is most in need of betterment.

The Association formally went on rec-

ord as favoring appropriate state and federal action to perpetuate the benefits that have accrued to the national dietary through enrichment of staple foods in accordance with the recommendations of the National Research Council.

ROYAL SANITARY INSTITUTE ISSUES YEAR BOOK

The 1949 *Year Book of The Royal Sanitary Institute,* London, consists of a list of Honorary Fellows, Fellows, members, and associates. A summary follows with a comparative column for the American Public Health Association:

Royal Sanitary Institute	
Honorary Fellows	23
Fellows	642
Members	4,175
Associates	3,174
Total	8,014

American Public Health Association	
Honorary Fellows	22
Fellows	2,093
Members	8,987
Total	11,102

ARGENTINE GROUP ELECTS OFFICERS

The Sociedad Argentina de Patología Infecciosa y Epidemiología of Buenos Aires has announced that the following officers will serve during 1949:

President—Dr. Humberto R. Rugiero
Vice-President—Dr. Lucio A. Garcia
Secretary—Dr. Enrique Callegari
Executive Secretary—Dr. Teodoro Somaloma
Treasurer—Dr. Alfredo Igobone

MISSOURI RIVER BASIN HEALTH COUNCIL ORGANIZED

On July 15, 1948, the health officers of the 10 states in the Missouri River Basin: Colorado, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota and Wyoming, signed "The Missouri River Basin Sanitation Agreement." Under the agreement, a permanent Missouri River Basin Health Council composed of the health officer and sanitary engineer of each of the respective states was formed.

The following officers were elected:

Chairman—W. S. Petty, M.D., Nebraska State Health Officer
Vice Chairman—J. L. Williams, Jr., M.D., Missouri Acting State Health Officer
Secretary—W. W. Towne, Director, Division of Sanitary Engineering, South Dakota Board of Health

The purpose of the Council has been stated as: ". . . to coöperate with the U. S. Public Health Service and other agencies involved in carrying out a policy for the protection and improvement of the water of this Basin wherever necessary in these states, and the prevention or correction of undue pollution thereof, and in the promotion of specific health programs relative thereto, to the end that full development of the said Basin with its many benefits may be realized by all the people residing in the area."

One of the first committees appointed was the Engineering Committee, composed of the sanitary engineering directors of the 10 states. At a meeting of this committee on December 3 and 4, subcommittees were appointed to study the following subjects:

1. Water standards and classifications
2. Uniform legislation, compacts, etc.
3. Uniform standards for submission of plans, methods and reporting of data, and mapping
4. The scope of environmental sanitation problems in the basin and recommendations for further committee action.

INCREASED HOSPITAL SERVICE RATES

Increased rates effective May, 1949, have been announced by the Associated Hospital Service of New York. This is the second increase in rates during the 14 years of the organization's existence, the first having been in May, 1947. The new rates represent approximately 27 per cent increase over the

previous ones and about 80 per cent over the original ones established in 1935. In the 2 years since the first increase in subscription rates hospital costs are estimated to have increased by 35 per cent.

PILOT MENTAL HEALTH PROJECT

The Division of Mental Hygiene of the U. S. Public Health Service, in coöperation with the Arizona State Department of Health, has established a pilot project in Phoenix, Ariz., designed to develop and strengthen community resources for mental health. Personnel will help mental health training, and consultation staffs of well baby and prenatal clinics, nursery and elementary schools, and health and welfare agencies deal with emotionally disturbed persons in such a way as to obviate the need for psychiatric treatment. The U. S. Public Health Service has assigned Walter M. White, Jr., M.D., psychiatrist, a clinical psychologist, two psychiatric social workers, and one mental health nurse to this project.

HEALTH IN RETARDED AREAS AID PLAN

The blueprints for help to economically backward areas of the world as outlined recently by President Truman stress the integration of the special technical missions that will be sent to various parts of the world. Thus agricultural plans will be supplemented by transportation plans, health programs by educational and agricultural, etc., around the circle of interrelated factors in raising the levels of production and standards of living in underdeveloped regions.

In such a plan, for example, plans for the reduction of infant mortality would go hand in hand with nutrition and food programs, so that there would not be the spectacle of saving babies to die of starvation as children or adolescents. Malaria would be controlled not only as an end in itself, but to produce sufficiently energetic workers to contribute their share to the national economy.

MASSACHUSETTS HEALTH CONFERENCE

The first annual Massachusetts Health Conference was held in Boston on February 19 and 20, under the chairmanship of Philip Mather, President of the National Health Council and of the American Social Hygiene Association. The program included 20 panel sessions on as many health subjects. Among these with their chairmen were:

Medical Care Costs and Methods—Hugh R. Leavell, M.D.

Local Health Units and Health Centers—Robert E. Archibald, M.D.

Citizen Participation in Planning for Health—Margaret Tracy

Rural Health Problems—Jesse Buffum

The Massachusetts Health Conference is made up of some 80 members representing every variety of citizen and professional interest in health in Massachusetts.

REGIONAL CONFERENCES ON LOCAL HEALTH UNITS IN GREAT PLAINS AREA

The National Advisory Committee on Local Health Units of the National Health Council has planned the 3rd and 4th in a series of regional conferences on local health units. The two conferences currently planned are one in Kansas City, Mo., April 20–21, to include Arkansas, Kansas, Louisiana, Missouri, and Oklahoma; and a second in Omaha, Nebraska, April 25–27, to include Iowa, Minnesota, Nebraska, North Dakota, and South Dakota.

The conferences will feature group discussions and group decisions as in the case of the two earlier conferences in Mitchell, Ind., and Salt Lake City. State teams of 10 to 15 persons, representing a cross-section of lay and professional interest in the development of more adequate local health services, will be selected by the respective state health officers.

Resource persons for the conferences will be furnished by such national agencies as the American Heart Association and the American Public Health Association, in addition to the National Health Council.

FIRE DESTROYS CHILE MEDICAL SCHOOL

Fire recently virutally destroyed the School of Medicine of the University of Chile. About 40 per cent of the library of 50,000 volumes was saved. It had just been reorganized by Edward Heiliger of the Rockefeller Foundation after 2 years' work. The journals published before 1940 and 40 per cent of those published after 1939 were saved. The extensive bibliographic material in the Institute of Biology and in the Institute of Microbiology was destroyed. The U. S. Army Medical Library is planning to supply from duplicate stocks some of the books and journals needed in the reconstruction of the Chilean collections. The American Public Health Association is sending to Dr. Hernan Romero, Director of the Laboratory of Preventive Medicine, several recent volumes of the *Journal* to restore that portion of the library. Friends of Dr. Romero who can send other journals and modern books may address them to him at the School of Public Health, University of Chile, Santa Lucia 382, Santiago.

MICHIGAN COMMUNITY CONFERENCE

The University of Michigan School of Public Health Conference on Community Health Services in Ann Arbor, January 31 and February 1, was the 30th in a series of inservice training courses held at the school within the past several years. Its nearly 100 participants were about equally divided between representatives of lay agencies and professional workers in nonofficial and official health agencies, particularly local health officers. It was designed to secure the support of an informed public for better local health units, for complete state coverage, and for a substantial state subsidy of two to three million dollars.

Out of the conference grew the beginnings of a state health committee or council. Its temporary chairman is Charles Leonard, Mayor of Hastings.

The out-of-state speakers included Florence R. Sabin, M.D., Director of Health and Welfare of Denver and Roscoe P. Kandle, Field Director of the American Public Health Association. The consumer viewpoint was presented by Mrs. E. L. Church, President of the Michigan Congress of Parents and Teachers.

CHRONIC ILLNESS COMMISSION ANNOUNCES ITS PROGRAM

As an outgrowth of the Section on Chronic Disease of the National Health Assembly held in Washington in May, 1948, a Commission on Chronic Illness is being set up as a joint project of the American Hospital Association, American Medical Association, American Public Health Association, and the American Public Welfare Association. An Interim Commission is now in operation made up of representatives of the four agencies, looking toward the formation of the permanent Commission in the near future.

The Chairman of the Interim Commission is James R. Miller, M.D., of Hartford, Conn., a member of the Board of Trustees of the A.M.A., which is also represented by Thomas A. McGoldrick, M.D., of Brooklyn, N. Y. The representatives of the American Public Health Association on the Commission are Dean W. Roberts, M.D., M.P.H., Chief of the Bureau of Medical Service, Maryland State Department of Health, Baltimore, and Edward S. Rogers, M.D., M.P.H., Dean of the School of Public Health, University of California, Berkeley.

Albert Snoke, M.D., of New Haven, Conn., and J. Douglas Colman of Baltimore, Md., represent the A.H.A., and

Ellen C. Potter, M.D., of Trenton, N. J., and Judge Thomas S. J. Waxter of Baltimore, represent the A.P.W.A. Mrs. Lucille M. Smith of the Division of Public Health Methods, U.S.P.H.S., Washington, D. C., has been detailed by the Federal Security Agency to assist the Interim Commission as Executive Secretary in establishing the permanent Commission, which will include representatives of the general public, industry, labor, agriculture, education, religion, the social sciences, journalism, and health and welfare.

The program of the Commission goes back to the joint report of the same four agencies on chronic illness (*A.J.P.H.*, October, 1947, pp. 1256–1266). It reflects the considered opinion of these agencies that the patient with chronic illness is one of the major challenges to modern society. Sooner or later some form of long-term illness affects one or more members in most families of the nation. A conservative estimate suggests that more than one-sixth of the population is afflicted with some chronic disease.

The Interim Commission has suggested the following objectives for the permanent Commission:

1. To modify the attitude of society that chronic illness is hopeless; to substitute for the prevailing over-concentration on provision of institutional care a dynamic program designed to prevent chronic illness, to minimize its disabling effects, and to restore its victims to a socially useful and economically productive place in the community.

2. To clarify the problems arising from chronic illness among all age groups, with full realization of its social as well as its medical aspects.

3. To coördinate separate programs for specific diseases with a general program designed to meet more effectively needs which are common to all the chronically ill regardless of the cause or causes of their illness.

4. To clarify the interrelationship of professional groups and agencies now working in the field.

5. To stimulate in every state and locality a well rounded program for the prevention and control of chronic diseases and for the care and rehabilitation of the chronically ill.

Proposed activities of the permanent Commission include:

1. Assembling existing data in order to evaluate and make use of all that is now available and to determine areas requiring further study.

2. Serving as a clearing house for information on laws, programs, experiments, and new developments; to keep all interested groups informed through a newsletter published regularly; and to publish special reports from time to time.

3. Stimulating the development of new methods and techniques in the organization and administration of services for the chronically ill.

4. Developing suggested patterns for integrated community programs.

5. Establishing criteria for the appraisal of state and local chronic disease programs and facilities.

6. Advising private and public state, regional, and local agencies interested in planning for the chronically ill.

7. Suggesting priorities for the determination of immediate as against long-range needs for the guidance of state and local communities.

8. Exploring methods of implementing the recommendations made by the Commission.

9. Preparing a report to the American people outlining a comprehensive plan for the prevention and control of chronic disease and for the care of rehabilitation of the chronically ill.

WHO TO ADMINISTER TWO PRIZES

The World Health Organization will henceforth administer two international prizes in public health. One is the Léon Bernard International Prize for practical results obtained in social medicine, established in 1937 in honor of Professor Léon Bernard, a member of the Health Committee of the League of Nations. The recipient will be selected by the Expert Committee on Social Medicine still to be appointed by the Health Assembly.

It will also administer the Darling Foundation International Malariology Prize to an author of an original study on the pathology or prophylaxis of Malaria. Selection of the winner will be made by the Expert Committee on Malaria. This prize fund was created in

1945 in memory of Dr. T. S. Darling, who was accidently killed during a study mission of the League of Nations Malaria Commission.

BRITISH HONOR FOR BERNARD M. BARUCH

In recognition of the international influence of his activities in advancing the cause of physical medicine, honorary membership in the British Association of Physical Medicine has been granted to Bernard M. Baruch, elder statesman and founder of the Baruch Committee on Physical Medicine. In informing Mr. Baruch of this recognition, Lord Horder, Physician to The King and President of the British Association of Physical Medicine, said "The impetus and encouragement which your generosity has afforded physical medicine is of international importance."

In 1944, Mr. Baruch established the Baruch Committee on Physical Medicine with a grant of $1,100,000 for treatment, training, and research in the field of physical medicine in which his father, Dr. Simon Baruch, was one of the nation's pioneers.

YALE SUMMER SCHOOL OF ALCOHOL STUDIES TO HAVE TWO SESSIONS

The Summer School of Alcohol Studies, conducted annually since 1943 by the Laboratory of Applied Physiology of Yale University, will hold two sessions in 1949; one on the campus of Trinity University at San Antonio, Tex., June 6–29; and one at Yale University, New Haven, Conn., July 8–August 5. The curriculum, consisting of lectures, seminars, and demonstrations, deals with the medical, psychologic, physiologic, psychiatric, sociologic, economic, legal, religious, education, and therapeutic aspects of alcohol problems. The summer school is directed by Elvin M. Jellinek, Sc.D. The lecturers, mainly from the faculties of Yale University and Texas Christian University, include authorities who have done original research in their fields as well as representatives of other national institutions of education, research, treatment or rehabilitation. Applications for the Texas session will be received up to April 1 and for the Yale session up to April 15. Application blanks may be obtained from the Executive Secretary, Summer School of Alcohol Studies, Yale University, New Haven, Conn.

PERSONALS

ODIN W. ANDERSON, Ph.D.,† has resigned as Instructor, Bureau of Public Health Economics, School of Public Health, University of Michigan, to become Associate Professor in charge of the Social Aspects of Medicine, University of Western Ontario, London, Ontario.

ROBERT J. ANDERSON, M.D.,† a former chief of the Tuberculosis Service, California State Department of Public Health, has been appointed Medical Director and Chief of the Tuberculosis Control Division, U. S. Public Health Service.

DONALD B. ARMSTRONG, M.D.,* Second Vice President of the Metropolitan Life Insurance Company, in charge of its health educational and welfare program, has been elected President of the New York Tuberculosis and Health Association, Inc.

HERBERT ARNOLD has become Assistant Sanitary Engineer in the Division of Sanitary Engineering, North Dakota State Health Department, Bismarck.

WILLIAM T. BEATY,† who for the past year has conducted a demonstration in health education with the Ulster County Health Association, joined the New York State Committee on Tuberculosis and Public Health on February 1, as Field Secretary.

JESSIE M. BIERMAN, M.D.,* Professor of Maternal and Child Health at the University of California's School of

Public Health, between January and April was in Germany to take part in a study of maternal and child health under the democratization program, at the request of the Military Government in the American Zone.

MADISON B. BROWN, M.D.,† has been appointed Executive Vice-President and Medical Director of the Roosevelt Hospital, New York City.

ELIZABETH BUTT was recently appointed Director of the Waycross branch laboratory of the Georgia State Health Department, succeeding CARL ADAMS, resigned.

A. J. CASSELMAN, M.D.,† formerly of the Public Health Laboratory of Camden, N. J., became Director of the Bureau of Laboratories, New Jersey State Department of Health.

DUNCAN M. CHALMERS, M.D., has succeeded LEO J. GEHRIG, M.D., as Director, Division of Tuberculosis Control, Alaska Department of Health. He has been chief of the outpatient department and station allergist with the Veterans Administration at Batavia, N. Y.

EDWARD J. CLEARY, has resigned as Executive Editor of "Engineering News-Record," to become Executive Director and Chief Engineer of the Ohio River Valley Water Sanitation Commission. From headquarters in Cincinnati, he will direct the work on stream pollution abatement envisaged in the compact signed a year ago by the governors of the 8 states of the Ohio River Basin.

JAMES S. CULLEYFORD, M.D., Chief of Medical Services, Veterans Administration, Regional Office, Denver, Colo., has been decorated with the Order of the Orange-Nassau with Swords by the Netherlands Government for his outstanding services to Dutch people held in German concentration camps during the recent war.

LOUIS K. DIAMOND, M.D., of the Harvard Medical School and Children's Medical Center, Boston, has been granted temporary leave to serve as Medical Director of the National Blood Program, American National Red Cross, Washington, D. C.

HARRY EAGLE, M.D., since July, 1947, Scientific Director of the National Cancer Institute, is the head of the experimental therapeutics section that has been set up in the new Microbiological Institute of the National Institutes of Health.

NATHAN B. EDDY, M.D., leader in investigating the use of new narcotics for the control of pain in cancer at the National Institutes of Health, has been elected chairman of the Expert Committee on Habit Forming Drugs of WHO.

VIRGINIA B. ELLIMAN, for the past 2 years Director of Nursing Service for the Eastern Area of the American National Red Cross, has been appointed National Director of Disaster Nursing and Nurse Enrollment for the organization.

WILLIAM GRODOWITZ,† has recently transferred from the Marriage and Divorce Analysis Section of the National Office of Vital Statistics to the Statistics Section of the Cancer Institute, Bethesda, Md.

HARVARD UNIVERSITY, CAMBRIDGE, MASS.

The following appointments have been made to the faculty of the School of Public Health:

WILLIAM M. SCHMIDT, M.D.,* associate professor of maternal and child health practice.

ALFRED L. FRECHETTE, M.D.,* Promoted from instructor to assistant professor of public health practice.

CHARLES R. WILLIAMS, M.D., Promoted from instructor to assistant professor of industrial hygiene.

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* Fellow A.P.H.A.
† Member A.P.H.A.

JOSEPH HIRSH, Ed.D.,* has been appointed a member of the Medical Advisory Commission of the Division of Alcohol Studies and Rehabilitation of the Virginia State Department of Health.

MAX C. IGLOE, M.D.,† is the new head of the Chicago Health Department's District Health Services Division and has also been appointed associate professor in the department of preventive medicine and public health, University of Illinois College of Medicine, Chicago.

ELMORE P. KALBAUGH, M.D., has recently been assigned by the U. S. Public Health Service to serve as Director of the Division of Tuberculosis Control, Arizona State Health Department.

CLAYTON G. LOOSLI, M.D.,† Associate Professor of Medicine, and Director of the Student Health Service of the University of Chicago, has been appointed to take charge of the Division of Preventive Medicine and Public Health in the School of Medicine, where he will be in charge of projects concerned with problems of preventive medicine in both industrial and general public health areas.

MARION MCBEE, for many years Executive Secretary of the New York City Committee on Mental Hygiene of the State Charities Aid Association, has been made Director, division on state and local organization, of The National Committee for Mental Hygiene.

ABBOTT B. MITCHELL, M.D., M.P.H.,* formerly with the Michigan State Department of Health, became Jackson County, Oregon, Health Officer February 1, succeeding A. ERIN MERKEL,† resigned.

PHILIP E. NELBACH,† public health specialist and executive director of the United Yugoslav Relief Fund of America, has been reëlected to the Board of Directors of CARE for 1949.

PHILIP J. RAFLE, M.D., M.P.H.,* New York City Regional Director, New York State Department of Health, has resigned to become Commissioner of Health in Suffolk County, with headquarters at Riverhead, N. Y., succeeding ARTHUR T. DAVIS, M.D., deceased.

NINA RIDENOUR, most recently director, National Committee for Mental Hygiene, division on world affairs, is now Director of the division of education.

DOROTHY ROUSE, has succeeded JANE E. MYERS as Chief of Occupational Therapy of the Veterans Administration Physical Medicine Rehabilitation Service.

HERBERT I. SCHEFFER, M.D.,† has been appointed Director, Bureau of Medical and Hospital Services of the New York City Department of Hospitals. Dr. Scheffer formerly was Medical Superintendent of Metropolitan Hospital, New York City.

CECIL A. Z. SHARP, M.D., M.S.P.H.,* Commissioner of Health for St. Louis County, Missouri, and Assistant Professor of Public Health at Washington University School of Medicine, resigned in November, 1948, to become St. Louis Area Medical Administrator for the United Mine Workers of American Welfare and Retirement Fund.

MARION SHEAHAN,* who recently retired as Director of the Division of Public Health Nursing, New York State Department of Health, Albany, is serving during the spring term as Visiting Associate Professor in Public Health Administration at the School of Public Health, University of California, Berkeley.

RICHARD E. SHOPE, M.D., member of the Rockefeller Institute for Medical Research, New York, N. Y., has been appointed Associate Director of the Merck Institute for Therapeutic Research, Rahway, N. J.

JOSEPH SMITH, M.D.,* has been appointed Superintendent of the Provi-

dence, R. I., Department of Health, succeeding MICHAEL J. NESTOR, M.D., deceased.

CATHERINE SNOW, became Health Educator of the Macon County (Illinois) Tuberculosis and Visiting Nurse Association in January.

ANATOLE A. SOLOW,† formerly a staff member of the A.P.H.A. Committee on the Hygiene of Housing in New Haven, Conn., has left for a 3 months' advisory consultation on town planning to the Israeli Government in Palestine.

R. M. SORENSON, M.D.,* who served for some years with the Iowa State Department of Health in Venereal Disease Control, is now Director of Venereal Disease Control for the Health Department of the City and County of Denver, Colo.

FRANCES A. STOLL,* of New York City, President of the American Dental Hygienists Association, has been named consultant in dental hygiene for the Veterans Administration. She is the first dental hygiene consultant to serve with Veterans Administration.

LEONARD W. TRAGER, Director of the Division of Sanitary Engineering and Technical Secretary of the New Hampshire Water Pollution Board, has resigned to become Chief, New England Drainage Basin, District on Stream Pollution Control, U. S. Public Health Service, with headquarters in Boston.

ELAINE UPDYKE, Sc.D.,† who has served at the State Bureau of Laboratories, Grand Rapids, Mich., as a staff member of the A.P.H.A., under the Pertussis Study Project, has resigned to join the staff of the Communicable Disease Center, U. S. Public Health Service, in Atlanta, Ga.

V. M. WINKLE, M.D.,* formerly Director of the Division of Local Health Administration, Kansas State Board of Health, is now Director of the Kansas City-Wyandotte County Health Department, a full-time unit.

I. JACQUES YETWIN, M.D.,† Chairman of the Springfield, Mass., Chapter of the American Association for the Advancement of Science was appointed Professor of Parasitology at American International College, Springfield, Mass., as of February, 1949.

JAMES ZETEK, of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, has received the Republic of Panama's highest award, The Vasco Nunez de Balboa decoration in recognition of his work on entomological and other biological problems of Panama and the Canal Zone.

Deaths

A. PERRY BANTA,† Associate Professor of Sanitary Engineering, California Institute of Technology (Engineering Section).

GOODMAN BARE, M.D.,† Anderson County Health Department, Anderson, S. C. (Health Officers Section).

JACOB R. BITNER,† Superintendent of Schools, Columbus, Neb. (Public Health Education Section).

HARVEY J. BURKHART, D.D.S.,† Director, Eastman Dental Dispensary, Rochester, N. Y. (Maternal and Child Health Section).

ALLSTON BURR,† Chestnut Hill, Mass. (Unaffiliated).

ISIDOR J. EHLIN, M.D.,† Social Hygiene Clinic, New York City Health Department (Industrial Hygiene Section).

WALTER J. FARRELL, M.D.,† Health Officer and School Physician, Johnson City, N. Y. (Health Officers Section).

CARL J. HAWLEY, M.D.,† Director, Division of Epidemiology, Los Angeles City Health Department (Health Officers Section).

W. SCOTT JOHNSON,* Chief Engineer and Director, Section of Environ-

* Fellow A.P.H.A.
† Member A.P.H.A.

mental Sanitation, Missouri Division of Health, died recently (Engineering Section).

PATRICK J. MONAGHAN,† Newark, N. J. (Engineering Section).

MARY E. MURPHY,† Director of the Elizabeth McCormick Memorial Fund, Chicago, Ill., and internationally known authority on child welfare, died suddenly on December 25, 1948.

JOHN J. SIPPY, M.D.,* Health Officer, San Joaquin Local Health District, Calif., died March 15 (Health Officers Section).

Conferences and Dates

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association:
69th Annual Conference. Stevens Hotel, Chicago, Ill. May 30–June 3.
California Section. April 29.
Canadian Section. April 24–27.
Indiana Section. April 20–22.
Kansas Section. April 21–22.
Nebraska Section. April 21–22.
New Jersey Section Outing. June 23.
New York Section. April 28–29.
Pacific Northwest Section. May 12–14.

Antibiotics Study Section of the National Institutes of Health. Second National Symposium on Recent Advances in Antibiotics Research. Washington, D. C. April 11–12.

Arizona Public Health Association. Hassayampa Hotel. Prescott, Ariz. May 12–13.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Colorado Public Health Association. Vail Hotel, Pueblo, Colo. May 23–24.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Connecticut Public Health Association. New Haven, Conn. June 14.

First Congress International Hospital Association. Amsterdam and Groningen, Holland. May 30–June 4.

Georgia Public Health Association. DeSoto Hotel, Savannah, Ga. May 2–4.

Health Officers and Public Health Nurses of New York State. Lake Placid, N. Y. June 20–23.

International Congress on Rheumatic Diseases. New York, N. Y. May 30–June 3.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

Kansas Public Health Association. Hotel Besse, Pittsburgh, Kan. April 25–27.

Massachusetts Public Health Association. Amherst, Mass. June 15–17.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Middle States Region Health Educators Conference. Milwaukee, Wis. May 11–13.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.

Missouri Public Health Association. Jefferson City, Mo. May 4–6.

National Convention of the American Red Cross. Atlantic City, N. J. June 27–30.

National Social Welfare Assembly. Hotel New Yorker, New York, N. Y. May 18.

National Tuberculosis Association. Detroit, Mich. Week of May 2.

Royal Sanitary Institute. Brighton, England. May 23–27.

Society of American Bacteriologists. Cincinnati, Ohio. Hotel Netherland Plaza. May 16–20.

South Carolina Public Health Association. Gloria Theater. Myrtle Beach, S. C. May 30–June 1.

Southern Branch, American Public Health Association. Baker Hotel, Dallas, Tex. April 14–16.

Tennessee Public Health Association. Andrew Jackson Hotel. Nashville, Tenn. May 2–4.

United States-Mexico Border Public Health Association. Nogales, Ariz., and Nogales, Sonora, Mexico. April 27–29.

Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.

West Virginia Public Health Association. Daniel Boone Hotel, Charleston, W. Va. June 2–3.

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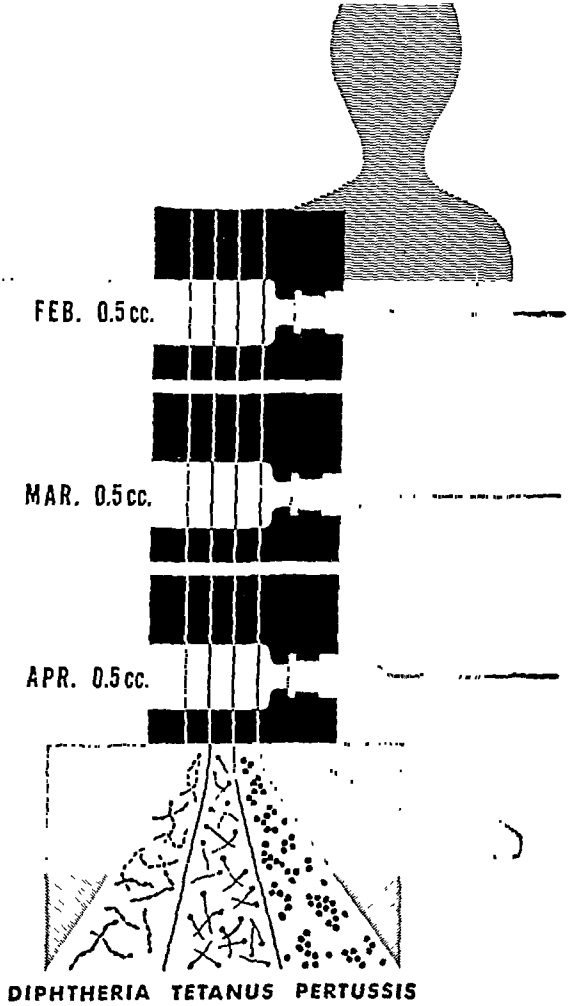
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Smoke Camels and test them in your own "T-Zone"—T for taste, T for throat. If, at any time, you are not convinced that Camels are the mildest cigarette you have ever smoked, return the package with the unused Camels and we will refund its full purchase price, plus postage. *(Signed)* R. J. Reynolds Tobacco Co., Winston-Salem, North Carolina.

Directory of Health Service

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Serving the field of Public Health over 50 yrs.

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PED-X

KILLS LICE AND NITS
in
ONE APPLICATION
gives
Protection Against Reinfestation for at Least Two Weeks
SO EASY TO USE
applied like a refreshing shampoo.

Write for descriptive literature.

THE GART PHARMACAL COMPANY
6118 Laurel Hill Blvd. Woodside, N. Y.



Here's how the new B-K PR plan can help you

The B-K PR PLAN stands for better patron relations between farmer and dairy plant. As the basis for this, a complete program has been set up by the makers of B-K to help the farmer produce top quality milk through a definite and efficient dairy sanitation program.

This B-K PR PLAN offers the dairy farmer . . . through his fieldman . . . informative films, recordings, literature and other educational material . . . that directs the farmer's attention to the need for positive dairy sanitation.

You can depend on the authenticity and accuracy of the material used in this B-K PR PLAN, for it has been carefully prepared by the makers of B-K Products—the backbone of many quality milk programs. Find out more about the B-K PR PLAN and how you can play a part . . . we'll send full details on request. Write: Dept. PR, B-K Division, Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia 7, Pa.



PENN SALT
dairy chemicals



More light on Ice Cream's food value

Now, actual analyses show ice cream to be a better source of vital nutrients than previously believed

It is now established that ice cream can make an important contribution to the daily intake of many dietary essentials.

Heretofore, our knowledge of the individual nutrients of ice cream was based entirely on calculated values. Only recently have actual *analytical* data on the food value of ice cream been made available.

The first complete data on commercial ice cream of specified composition are contained in the work of Dahlberg and Loosli.* For this study, vanilla ice cream was manufactured in a commercial plant according to standard procedures but under scientifically controlled conditions.

These analytical data show that, in general, we had underestimated the nutritive content of ice cream. This was particularly true of riboflavin and vitamin A.

Here are the results of that work:

Nutrient Content of 100 Grams of Vanilla Ice Cream* (approximate measure = ⅙ quart)

Food Energy—206 Calories	Iron—0 12 Milligrams
Protein—3 85 Grams	Vitamin A—548 I U
Fat—12.06 Grams	Thiamine—0 04 Milligrams
Calcium—0 12 Grams	Riboflavin—0.24 Milligrams
Phosphorus—0 11 Grams	Niacin—0 10 Milligrams

It is gratifying to those of us intimately concerned with nutrition problems to know that ice cream is even better nutritionally than we had thought. These reliable figures on the food value of ice cream will meet a need long felt by everyone concerned with planning adequate diets, whether to please normal appetities, or the often difficult appetites of the convalescent and the aged.

*Dahlberg, A. C. and Loosli, J. K. *Nutritive value of commercial ice cream.* J. Am. Diet. Assn *24*:20 (Jan.) 1948.

National DAIRY COUNCIL

111 North Canal Street • Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and to education in the use of dairy products

The presence of this seal indicates that all nutrition statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

Candy

MORE THAN JUST FOOD

Although candies are an excellent source of caloric food energy, and supply many valuable nutrients derived from the milk, cream, butter, nuts, peanuts, and eggs used in their manufacture, they provide more than calories and nutrients.

Candies make a worth-while contribution to the joy of living. They are among the foods which provide true gustatory satisfaction. Taken at the end of a meal, they create a sense of having eaten well and are conducive to an aura of satiety which can have a beneficial influence upon the digestive processes.

The child, the housewife, the worker, and the convalescent —all appreciate a piece or two of candy as the finishing touch of the mid-day or evening meal.

THE NUTRITIONAL PLATFORM OF CANDY

1. Candies in general supply high caloric value in small bulk.
2. Sugar supplied by candy requires little digestive effort to yield available energy.
3. Those candies, in the manufacture of which milk, butter, eggs, fruits, nuts, or peanuts are used, to this extent also—
   (a) provide biologically adequate proteins and fats rich in the unsaturated fatty acids,
   (b) present appreciable amounts of the important minerals calcium, phosphorus, and iron;
   (c) contribute the niacin, and the small amounts of thiamine and riboflavin, contained in these ingredients.
4. Candies are of high satiety value; eaten after meals, they contribute to the sense of satisfaction and well-being a meal should bring; eaten in moderation between meals, they stave off hunger.
5. Candy is more than a mere source of nutriment—it is a morale builder, a contribution to the joy of living.
6. Candy is unique among all foods in that it shows relatively less tendency to undergo spoilage, chemical or bacterial.

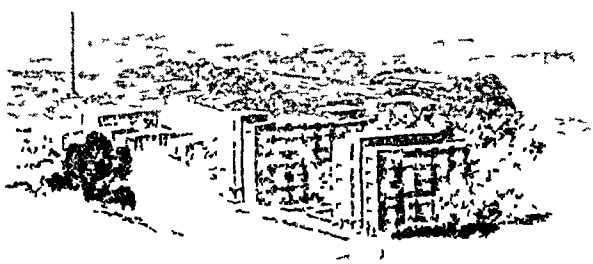
This Platform is Acceptable for Advertising in the Publications of the American Medical Association

COUNCIL ON CANDY OF THE National Confectioners' Association
1 NORTH LA SALLE STREET CHICAGO 2, ILLINOIS

HETRAZAN*

Diethylcarbamazine

Lederle



Partial view of Lederle Laboratories, Pearl River, New York

This entirely new development in parasitology is an organic compound that does not contain any heavy metals or similar toxic ingredients. It is the result of long and arduous research, during which more than 1,000 organic synthetic compounds were examined by *Lederle.* This product has been tested in India, Africa, Tahiti, Puerto Rico, British Guiana, and the Virgin Islands. It has been found to have the following advantages—

LOW TOXICITY—Previously, antiparasitic drugs of this type exerted a toxicity upon the host only slightly less than the toxicity upon the parasite.

EASE OF ADMINISTRATION—This drug is readily absorbed when given by mouth, and may be given after meals.

STABILITY—This organic substance is stable under tropical conditions.

IMMEDIATE EFFECTIVENESS—The microfilariae are killed almost instantly.

*Reg U. S. Pat. Off.

LEDERLE LABORATORIES DIVISION

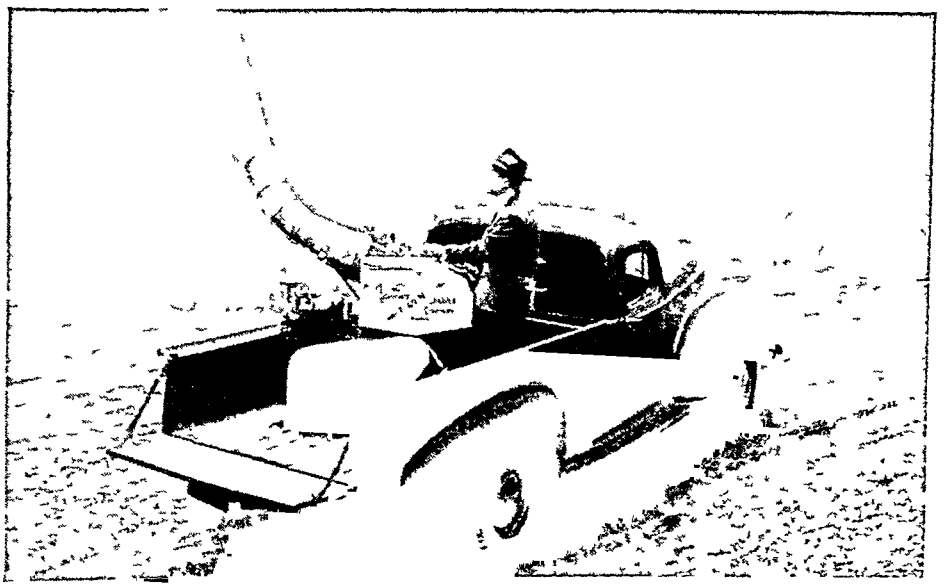
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A New Aid to Public Health

by

"LAWRENCE"



NEW 700 POUND "AERO-MIST" SPRAYER IDEAL FOR MUNICIPAL INSECT CONTROL PROGRAMS

In addition to its famous L-80 heavy duty mist sprayer "LAWRENCE" now offers in a smaller sprayer, ALL of the exclusive and scientific features, which have made "LAWRENCE" the name to remember in mist sprayers.

Efficient, compact, and economical, the L-40 LAWRENCE AERO-MIST SPRAYER is especially suitable for municipalities where the program is not large enough for the L-80 heavy duty mist sprayer, or for health departments desiring equipment for their own use apart from other municipal operations.

Here is the newest advance in the control of annoying and dangerous insect pests.

Hard-to-get-at spraying areas can be covered easily, quickly, and thoroughly with the L-40 mounted on a small truck or trailer. Like the heavy-duty unit, the L-40 can operate in a 360° circle and on any plane, automatically eliminating blind spots.

WRITE, WIRE or PHONE COLLECT
FOR COMPLETE DETAILS TODAY

THE LAWRENCE AERO-MIST SPRAYER CO.
58E Federal Street Greenfield, Massachusetts

IODINE

Essential Ally of the Profession for

Prevention . . . Diagnosis . . . Therapy

In addition to the many Iodine specialties, the following Iodine preparations, official in United States Pharmacopoeia XIII and National Formulary VIII, are widely prescribed in everyday practice:

U.S.P. XIII

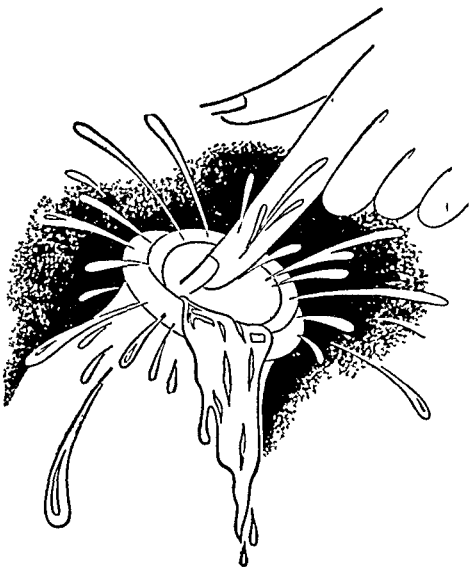
CALCIUM IODOBEHENATE
CHINIOFON
DILUTED HYDRIODIC ACID
HYDRIODIC ACID SYRUP
IODINE
STRONG IODINE SOLUTION (LUGOL'S)
IODINE TINCTURE
IODIZED OIL
IODOPHTHALEIN SODIUM
IODOPYRACET INJECTION
POTASSIUM IODIDE
SODIUM IODIDE

N.F. VIII

AMMONIUM IODIDE
FERROUS IODIDE SYRUP
IODINE AMPULS
IODINE OINTMENT
IODINE SOLUTION
PHENOLATED IODINE SOLUTION
STRONG IODINE TINCTURE
IODOCHLOROHYDROXYQUINOLINE
IODOCHLOROHYDROXYQUINOLINE TABLETS
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POTASSIUM IODIDE TABLETS
COLLOIDAL SILVER IODIDE
SODIUM IODIDE AMPULS
THYMOL IODIDE

An Antiseptic of Choice
IODINE TINCTURE U.S.P. XIII (2%)

IODINE EDUCATIONAL BUREAU, Inc.
120 BROADWAY, NEW YORK 5, N. Y.



PROTECTS CONSUMERS AGAINST *THEMSELVES!*

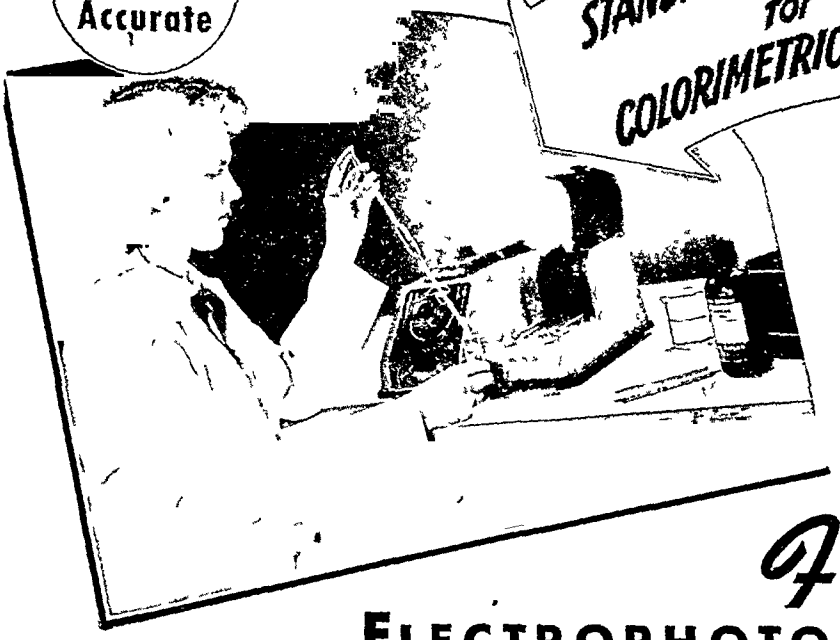
Milk contamination can too often occur in the hands of the ultimate consumer. Fork-prying and finger-pushing methods of opening bottles and careless discarding of a separate hood—common in both home and restaurant—constitute real threats to milk purity.

Genuine snug-fitting Seal-Kaps minimize these dangers. Seal-Kaps come off with a simple twisting motion. No need to pry or push. And they *snap back on* as often as necessary to protect securely the pouring lip until the last drop is used. There is no separate hood to discard, because Seal-Kap is disc and hood *in one.* And since it's so convenient to use, consumers automatically enjoy a superior protection—protection *against themselves!*

AMERICAN SEAL-KAP CORP.
11-05 44TH DRIVE, LONG ISLAND CITY 1, N.Y.

Simple
Rapid
Accurate

STANDARD INSTRUMENT for COLORIMETRIC ANALYSIS



Fisher ELECTROPHOTOMETER

—eliminates the human factor—

The Fisher Electrophotometer permits colorimetric analyses to be made accurately, quickly and simply wherever the color of the solution varies in a definite manner with the concentration of a constituent. Because of its unique, valuable features, the Electrophotometer is now widely employed for conducting many essential routine analyses and for research.

The Electrophotometer operates from any 110 volt, 50-60 cycle line. With it, the user can detect very slight color intensity differences because the photoelectric system it employs is considerably more sensitive and reliable than the human eye. Once a calibration is made, subsequent analyses can be conducted as rapidly as the simple operations can be performed.

Fisher Electrophotometer, complete with galvanometer, three filters, three 23-ml. absorption cells, manual of typical procedures for use with 110 volts, 50-60 cycle A.C. only $210.00

Headquarters for Laboratory Supplies

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717 Forbes St., Pittsburgh (19), Pa.
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EIMER AND AMEND
Greenwich and Morton Streets
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In Canada Fisher Scientific Co., Ltd., 904 St. James Street, Montreal, Quebec

"Our fountain is lots cleaner and safer . . . with DIXIE CUPS"



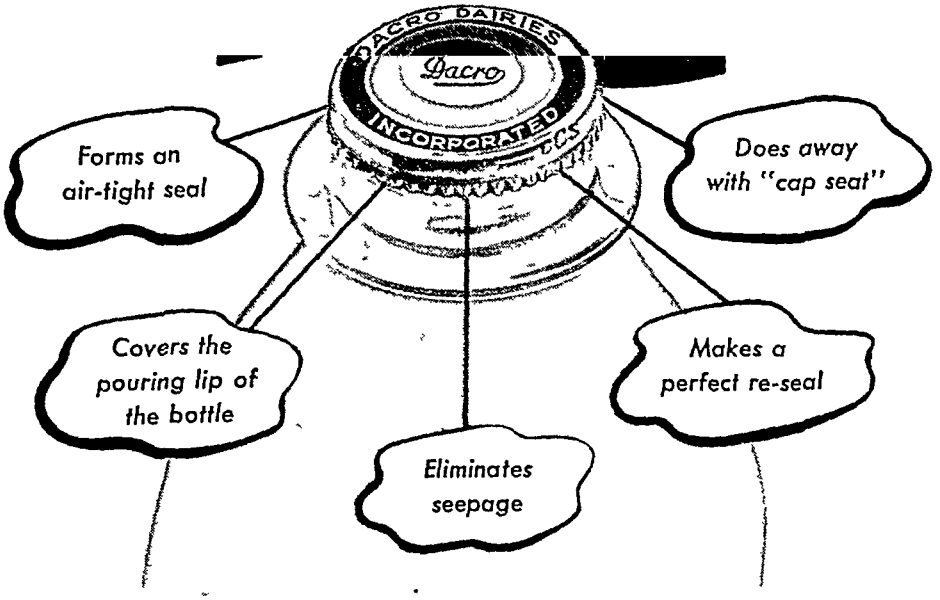
DIXIE CUP

"Dixie" is a registered trade mark of the Dixie Cup Company

Cleaner because there's no clutter of "dirties" at the sink — no risk of half-done dishwashing, sanitizing. Safer because there's no chance of spreading colds, flu and other mouth-borne infections. Certainly inspection at a "Dixie fountain" is easier and faster for you, because every Dixie guards public health!

DIXIE CUPS, VORTEX CUPS AND PAC-KUP CONTAINERS ARE MADE AT EASTON, PA., CHICAGO, ILL., DARLINGTON, S. C., FT. SMITH, ARK., TORONTO, CANADA

Dacro P-38



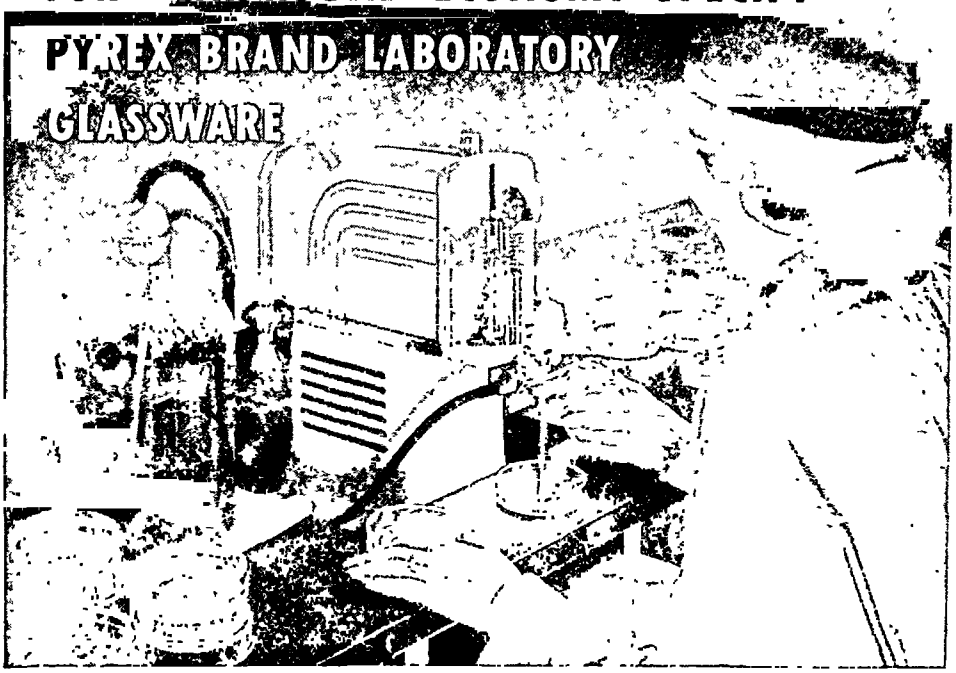
These famous features have made Dacro Protected milk the safest money can buy. Dacro P-38 has them all, and in addition gives the dairyman the economy of a smaller cap, plus all of the operating advantages of the Dacro Capping System.

CROWN CORK & SEAL COMPANY

Dacro Division • Baltimore 3, Md.

FOR YEAR-ROUND ECONOMY SPECIFY

PYREX BRAND LABORATORY GLASSWARE



BACK of the year-round economy you obtain with PYREX brand laboratory glassware is Corning's long interest in the field of public health. For many years, Corning researchers have done a great deal of development work on glassware to serve your increasingly important requirements.

PYREX brand culture tubes, pipettes, petri dishes, milk-dilution bottles, culture flasks and bacteria filters, for example, are made to exacting standards of chemical glass No. 774. It possesses properties which provide maximum mechanical strength, heat resistance and chemical stability. This means longer service life, greater economy.

Consult your laboratory dealer now. He stocks PYREX brand laboratory ware for you and can give you prompt service.

CORNING means research in GLASS

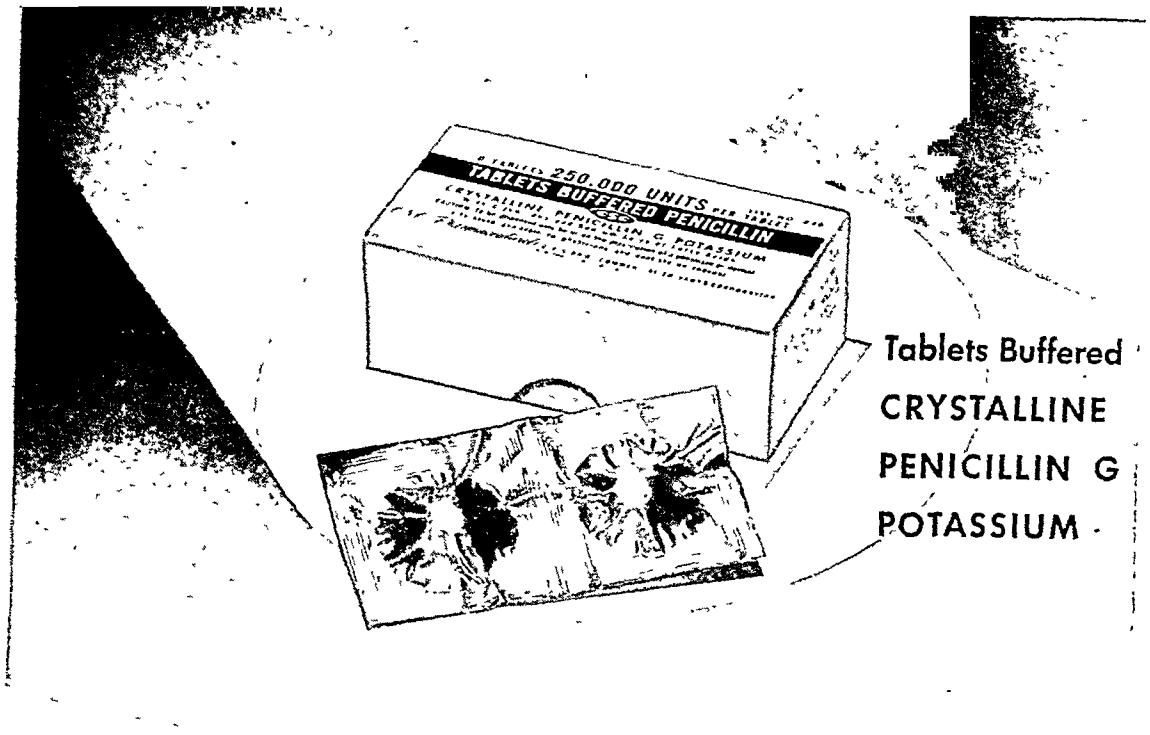
PYREX T.M. REG. U.S. PAT. OFF.

Stocked by Leading Laboratory Supply Houses

CORNING GLASS WORKS • CORNING, N. Y.

LABORATORY GLASSWARE

TECHNICAL PRODUCTS DIVISION: LABORATORY GLASSWARE • GAUGE GLASSES • GLASS PIPE
LIGHTINGWARE • SIGNALWARE • OPTICAL GLASS • GLASS COMPONENTS



250,000 UNITS
In the Oral Prophylaxis of Gonorrhea

By means of a single orally administered dose of penicillin taken as soon as possible after exposure, and preferably within 2 hours, the development of gonorrhea can usually be prevented. In a recently reported preliminary study,* the incidence of infection was dropped from .43 cases in 3,616 liberties among untreated controls to 2 cases in 1,239 liberties; there is reason to believe the two infections may have been due to failure to take the medication after exposure.

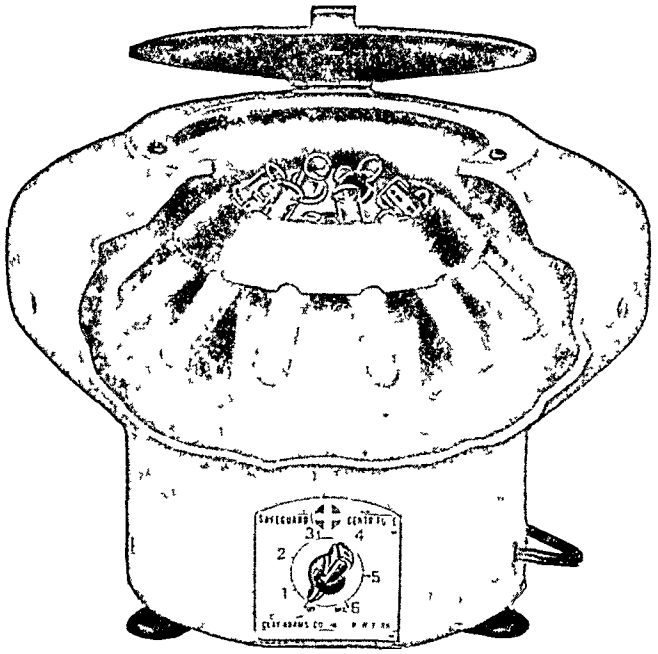
The subjects received a single buffered tablet of penicillin containing 250,000 units. No contraindications to this practice were detected. Ideally, the penicillin should be taken within two hours after exposure, but some protection is afforded even after an interval of six to eight hours.

Tablets Buffered Crystalline Penicillin G Potassium-C.S.C., individually wrapped in foil, are supplied in two potencies: 250,000 units each and 500,000 units each, in boxes of ten. Either may be employed, depending upon the clinical situation.

*Eagle, H.; Gude, A. V.; Beckman, G. E.; Mast, G.; Sapero, J. J., and Shindledecker, J. B.: Prevention of Gonorrhea with Penicillin Tablets. Preliminary Report, Pub. Health Rep. 63:1411 (Oct. 29) 1948.

C.S.C. Pharmaceuticals

A DIVISION OF COMMERCIAL SOLVENTS CORPORATION • 17 EAST 42nd STREET • NEW YORK 17, N. Y



Now available!

ADAMS 12-PLACE ANGLE-HEAD CENTRIFUGE

FEATURES

Utilizes the angle principle by suspending the tubes at a fixed 52° angle, thus achieving a faster rate of sedimentation and more complete sedimentation with finely dispersed particles.

Accommodates 12 blood tubes of the commonly used sizes, 6 blood tubes and 6 15-ml. tubes, or 6 15-ml. tubes.

Can be used for micro and semi-micro work by substituting the proper shields.

Head is made of a special aluminum alloy, precision-machined for accurate balance.

Base and guard bowl are an integral aluminum casting, carefully inspected to insure against flaws.

Rheostat provides an "off" position and allows for continuous speed control.

Rubber suction feet absorb all vibration and keep the centrifuge from creeping, even on a glass surface.

Finished in attractive gray hammertone.

Operates on 110 volts, AC and DC.

CT-1230/D ***Adams Safeguard Angle-Head Centrifuge, 12 Place;*** complete with head and 12 brass shields; without glassware_____each **$105.00**

220-volt models supplied at additional cost of $3.00.

Write for Circular describing our complete line of centrifuges.

CLAY-ADAMS COMPANY, INC.
141 EAST 25th STREET · NEW YORK 10
Showrooms also at 308 West Washington Street, CHICAGO 8, ILL.

POUR DIRT AWAY with Rexair



Wouldn't you like to get rid of dusty vacuum bags forever? Wouldn't you like to pour dust away as easily as dirty dishwater?

You can, with Rexair—the amazing new home appliance that washes your dust away. Rexair collects dust in water; you just pour the water down the drain and flush—dust and dirt go with it.

When you clean with Rexair, you clean *clean*. Rexair has no porous bag through which dust can escape back into the air you breathe. Instead, the air passes through a churning bath of water which wets down the dust and returns only dust-free air to the room. Wet dust cannot fly, and dust cannot escape from Rexair's water basin.

Rexair washes the air in your home, humidifies, vaporizes medicaments, even scrubs floors. See the Rexair before you buy a humidifier, a vaporizer, or even a vacuum cleaner. Over 1,000,000 in use.



FREE BOOK: Send for this free, illustrated 12-page book. Shows how Rexair even cleans the air you breathe. REXAIR DIVISION, MARTIN-PARRY CORP. Box 964, Toledo 1, Ohio, Dept. P-49

Rexair

APPLICATION FOR MEMBERSHIP

NAME ..... Birth Date .....
(please print)

MAILING ADDRESS .....
(street) (city or town) (state)

EDUCATION (give schools, dates and degrees; if no degrees received, say "none")

.....

PROFESSIONAL SOCIETIES
OF WHICH A MEMBER .....

EXPERIENCE (show recent positions, giving titles, names of organizations and years of tenure)

.....

.....

PRESENT OCCUPATION .....
(title of position)

.....
(name of organization) (part or full time) (date employed)

Remarks to describe character of work if not indicated by title .....

.....

AMERICAN PUBLIC HEALTH ASSOCIATION

1790 Broadway at 58th Street New York 19, N. Y.

Please complete application on reverse side

TESTING REAGENTS

for Hematology and Serology

Anti-A and Anti-B Serum
for Blood Grouping

Anti-Rh Serum
for determining presence of Rh factor

Sub-Groups of Anti-Rh Serum

Coombs' Serum
for antibody test

Anti-M and Anti-N Serum
for paternity tests

Absorbed B Serum
to differentiate between A_1 and A_2

Human Red Cells
for research work or controls

Sheep Cells

Complement

Amboceptor

Kline Antigen

Kahn Antigen

Mazzini Antigen

Kolmer Antigen

Positive Syphilitic serum
for control tests

P.S.A.
(Paraffin Section Adhesive)

CERTIFIED BLOOD DONOR SERVICE

146-16 Hillside Avenue Jamaica 2, New York

(Continued from previous page)

SECTION IN WHICH MEMBERSHIP IS DESIRED (choose only one)

☐ Health Officers	☐ Engineering	☐ Maternal and Child Health	☐ Epidemiology
☐ Laboratory	☐ Industrial Hygiene	☐ Public Health Education	☐ School Health
☐ Statistics	☐ Food and Nutrition	☐ Public Health Nursing	☐ Dental Health
		☐ Medical Care	☐ Unaffiliated

SPONSORS

Signature ..... Address .....

Signature ..... Address .....

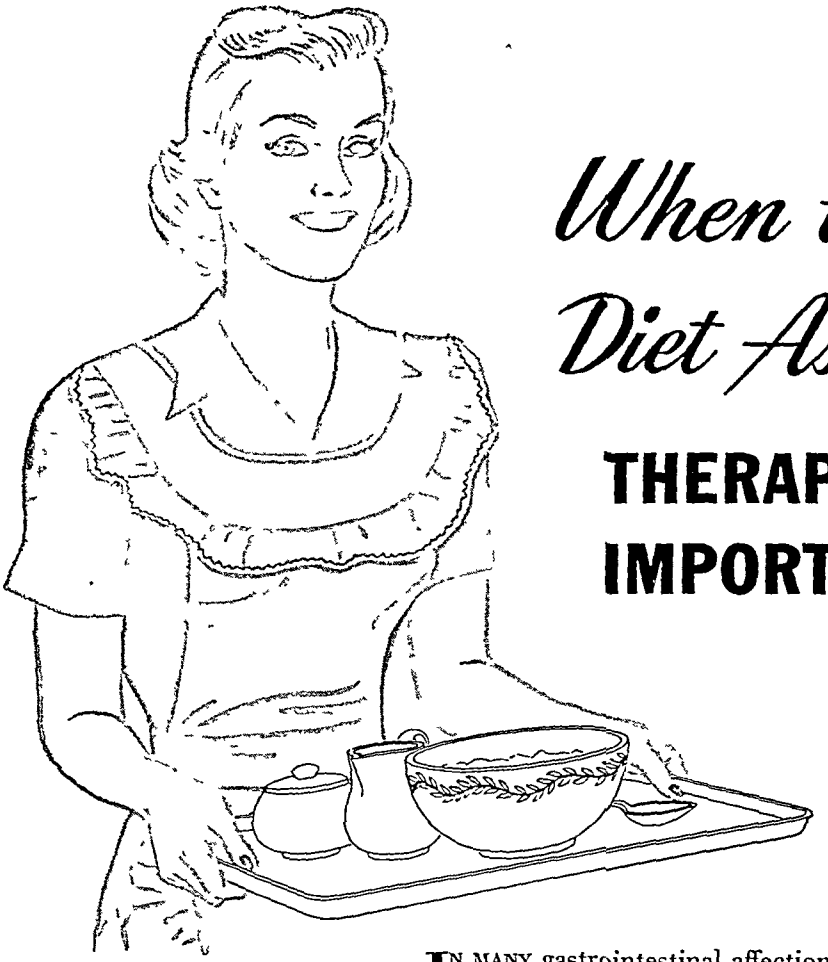
NOTE: Sponsors must be two members and/or Fellows of the American Public Health Association. It is essential that your application be sponsored, but if you cannot obtain the signatures of two persons affiliated with the Association, write their names and addresses in the spaces above and we will get in touch with them for you.

DUES A remittance for $..... is enclosed. Dues will be paid by .....

..... and a bill should be sent to that address.

Annual membership dues are $7.00 ($7.50 Canada; $8.00 foreign countries exclusive of Latin America) and include a subscription to the American Journal of Public Health as well as the other services maintained by the Association. The membership year is the same as the calendar year. Members joining during the first six months of the year will receive the Journal from January onward. Members joining after July 1st are requested to pay $10.50 (Canada $11.25, foreign $12.00) covering the latter half of the current year and the whole of the ensuing year, the Journal beginning with July of the current year.

DATE ..... SIGNATURE .....



When the Diet Assumes

THERAPEUTIC IMPORTANCE

IN MANY gastrointestinal affections, and in the management of the many systemic conditions in which diet assumes therapeutic importance, the cereal serving is particularly valuable.

Consisting of breakfast cereal, milk, and a teaspoonful of sugar, it provides an abundance of essential nutrients and caloric food energy. This time-honored combination is easily digested, bland, and readily utilized. It is well tolerated in the presence of many gastrointestinal conditions and offers the additional advantages of taste appeal, variety, ease of preparation in the home, and economy.

The over-all nutritive value of the cereal serving—1 ounce of ready-to-eat or hot cereal,* 4 ounces of milk, and 1 teaspoonful of sugar—is shown in this table:

CALORIES	202	PHOSPHORUS	206 mg.
PROTEIN	7.1 Gm.	IRON	1.6 mg.
FAT	5.0 Gm.	VITAMIN A	193 I.U.
CARBOHYDRATE	33.0 Gm.	THIAMINE	0.17 mg.
CALCIUM	156 mg.	RIBOFLAVIN	0.24 mg.
		NIACIN	1.4 mg.

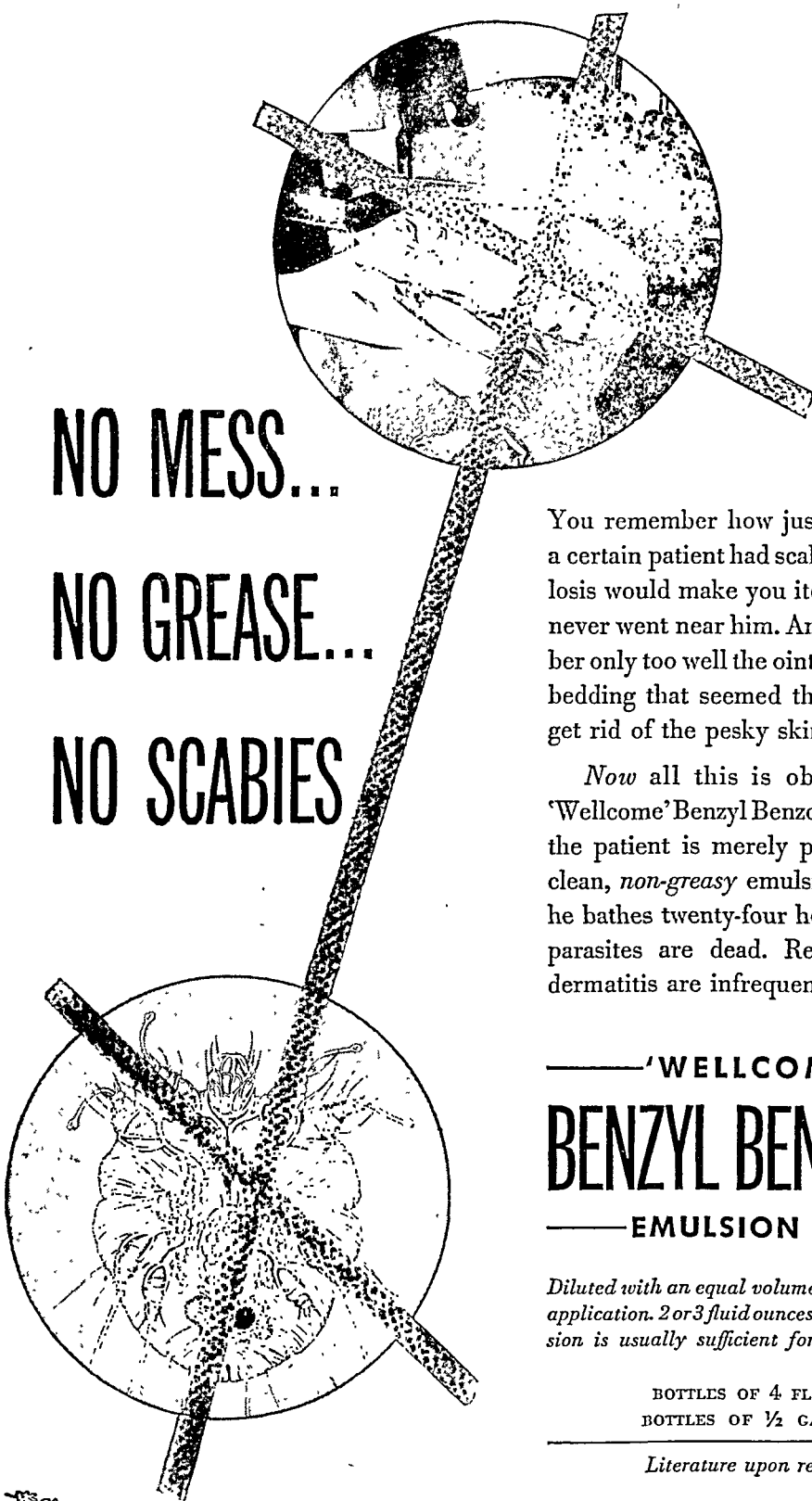
Composite average of all breakfast cereals on dry weight basis

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.

135 South La Salle Street • Chicago 3, Ill.

A RESEARCH AND EDUCATIONAL ENDEAVOR DEVOTED TO THE BETTERMENT OF NATIONAL NUTRITION



NO MESS...

NO GREASE...

NO SCABIES

You remember how just hearing that a certain patient had scabies or pediculosis would make you itch even if you never went near him. And you remember only too well the ointment-smeared bedding that seemed the only way to get rid of the pesky skin parasites.

Now all this is obsolete. With 'Wellcome' Benzyl Benzoate Emulsion, the patient is merely painted with a clean, *non-greasy* emulsion, and when he bathes twenty-four hours later, the parasites are dead. Recurrence and dermatitis are infrequent.

'WELLCOME' BRAND

BENZYL BENZOATE

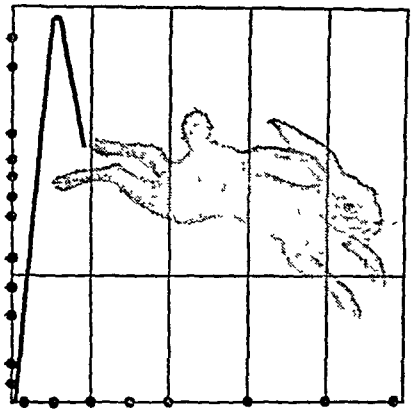
EMULSION 50%

Diluted with an equal volume of water before application. 2 or 3 fluid ounces of the 25% emulsion is usually sufficient for one treatment.

BOTTLES OF 4 FL. OZ.
BOTTLES OF ½ GALLON

Literature upon request

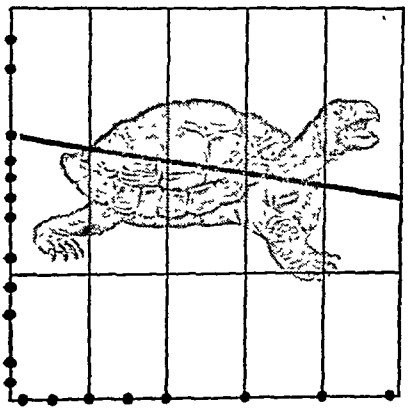
BURROUGHS WELLCOME & CO. (U.S.A.) INC., 9 & 11 EAST 41st ST., NEW YORK 17



now you can obtain **both**

a RAPID peak concentration of serum penicillin

and



a SUSTAINED *therapeutic* concentration

with a single injection from a single container

FLO-CILLIN "96"—the *original* 96-hour repository penicillin formulation—is now available with a *plus*. Soluble Penicillin G Potassium—100,000 units per cc.—has been added to the FLO-CILLIN "96" formula. The soluble potassium penicillin is absorbed promptly, with a resulting initial penicillin blood concentration sufficient to overwhelm invading bacteria at the outset. The insoluble Procaine Penicillin G, with water-repellent aluminum stearate in oil, is absorbed slowly and regularly over a period measured in days. Thus, with a single injection from a single container, it is now possible to obtain an initial *peak* penicillin blood level, together with a *therapeutic* blood level which is sustained for 96 hours in approximately 90 per cent of patients.*

CONSTANTLY FLUID

REQUIRES NO PROLONGED SHAKING

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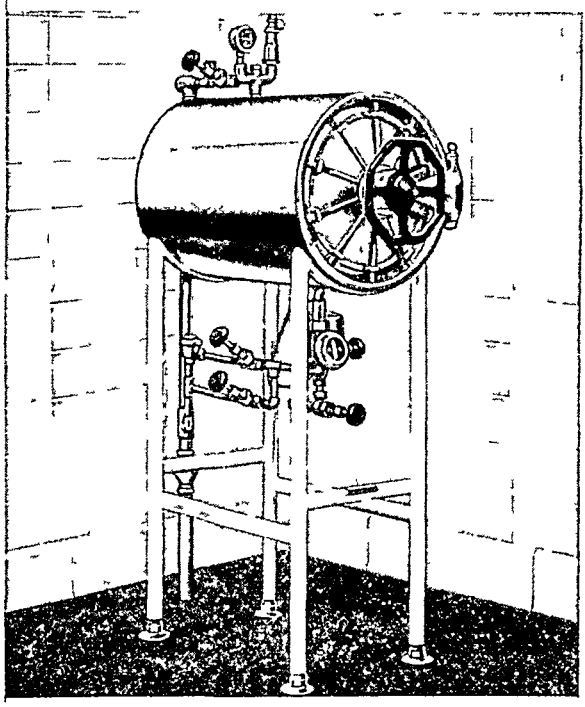
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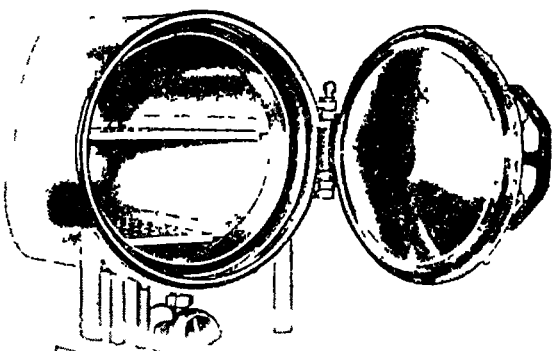
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[1]Cannon, P. R.; Steffee, C. H.; Frazier, L. J.; Rowley, D. A., and Stepto, R.C.: The Influence of Time of Ingestion of Essential Amino Acids upon Utilization in Tissue Synthesis, Fed. Proc. 6:390, 1947.

[2]Geiger, E.: The Role of the Time Factor in Feeding Supplementary Proteins, J. Nutrition 36:813 (Dec. 10) 1948.

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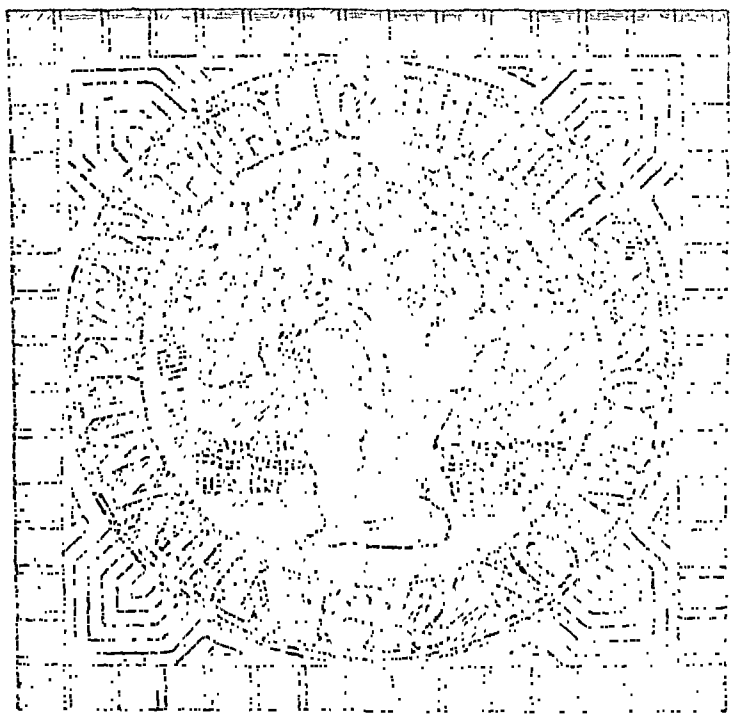
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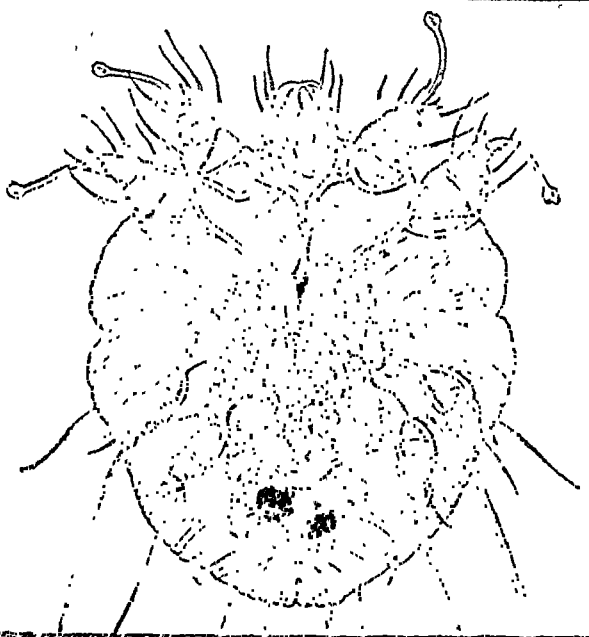
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Volume 39 MAY, 1949 Number 5

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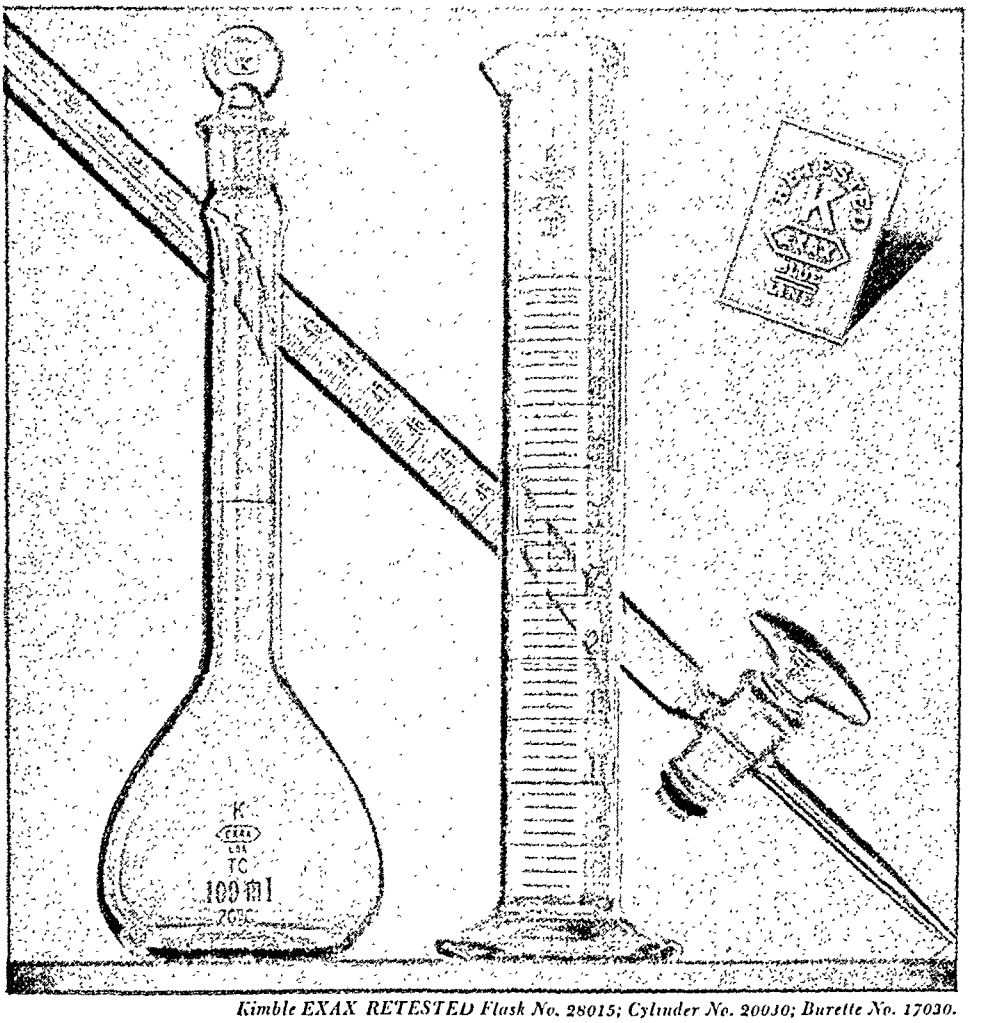
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1. Mackenzie, I. F.: Brit. M. J. 2:403, 1941.

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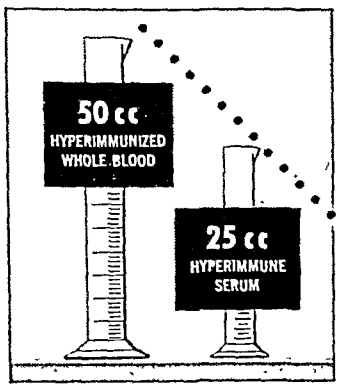
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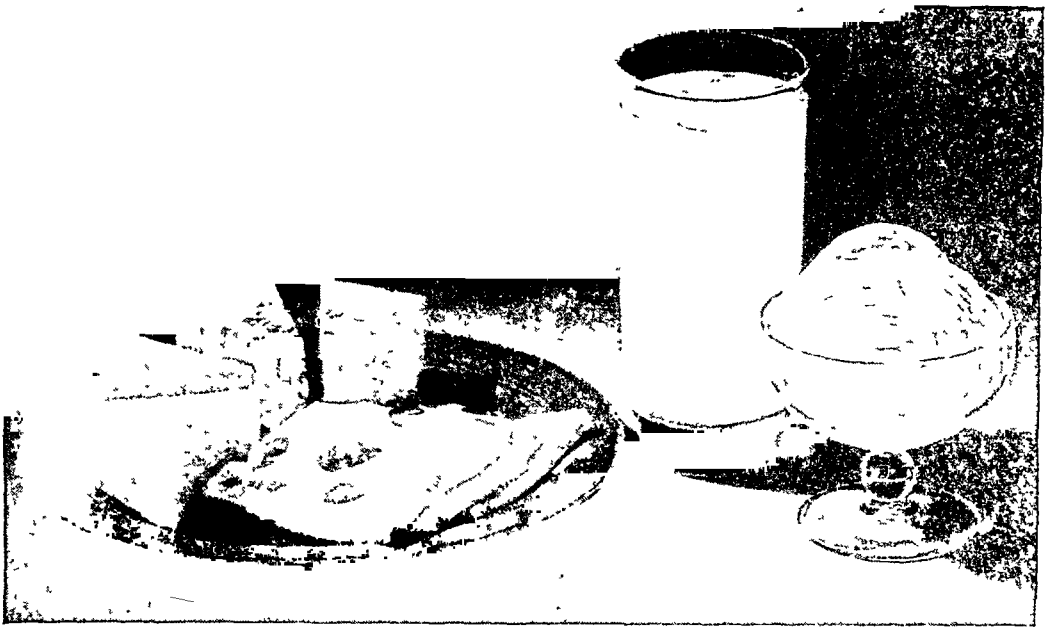
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**Recommended Daily Dietary Allowances, Revised 1948.* Reprint and Circular Series 129. Food and Nutrition Board, National Research Council, Washington, D. C.

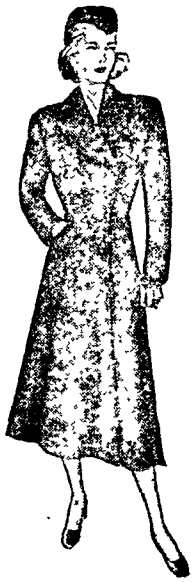
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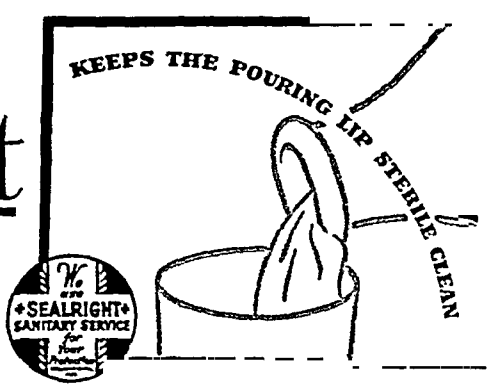
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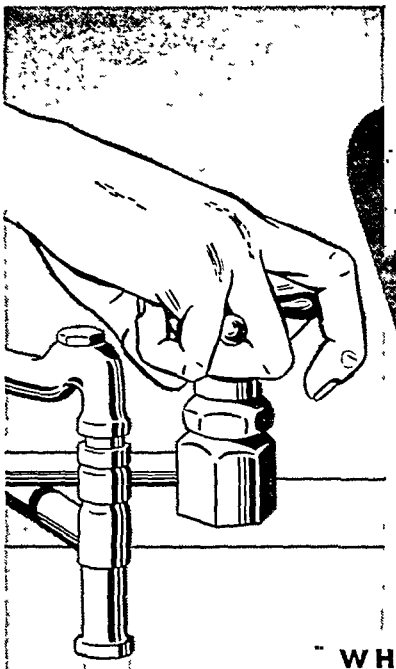
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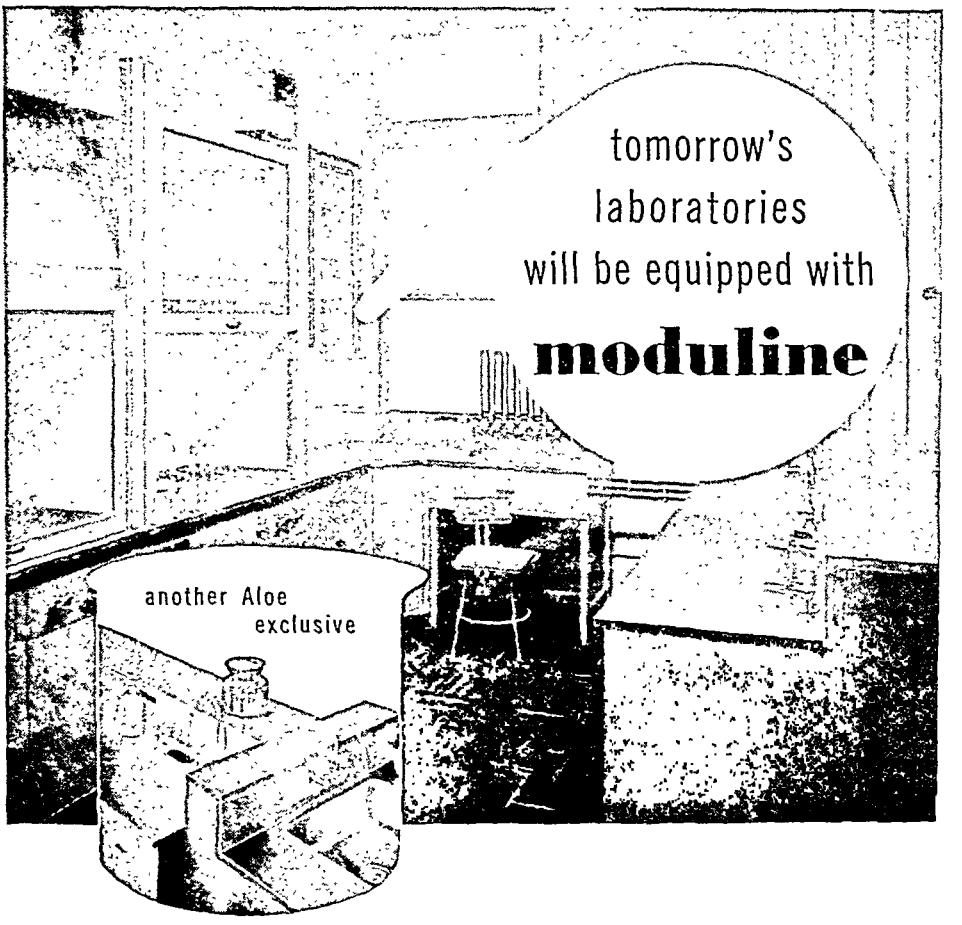
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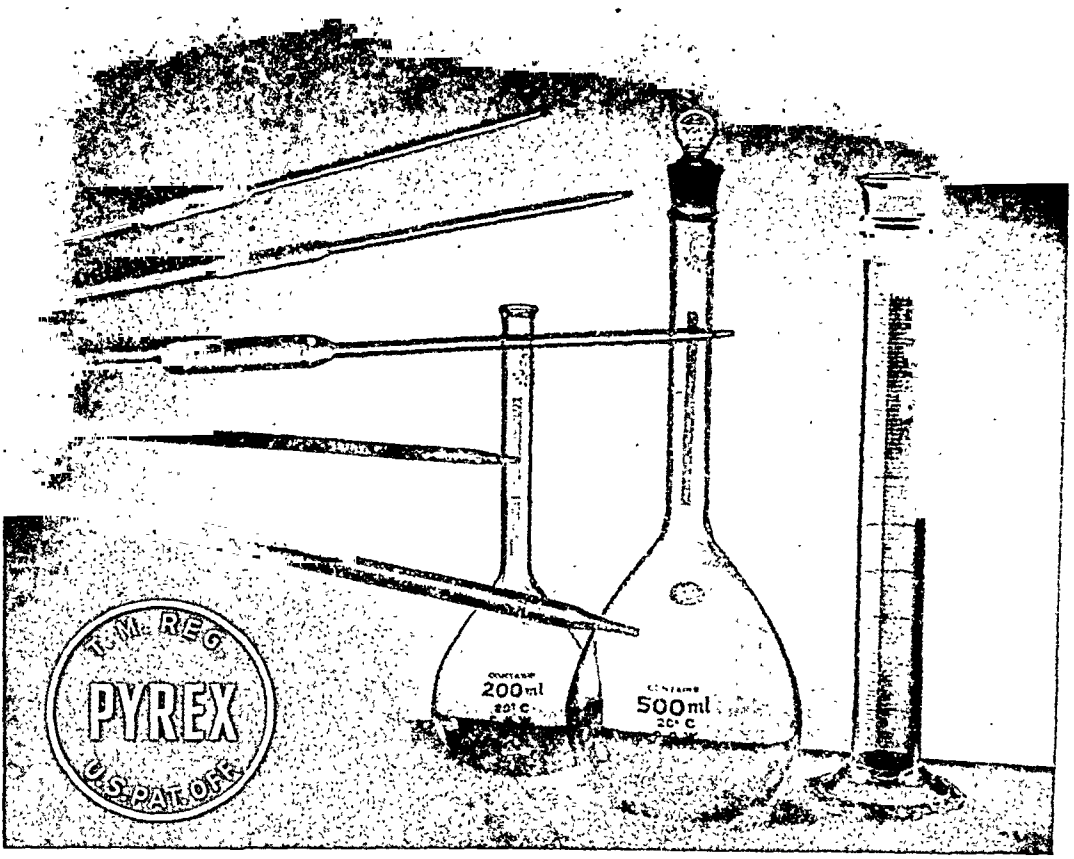
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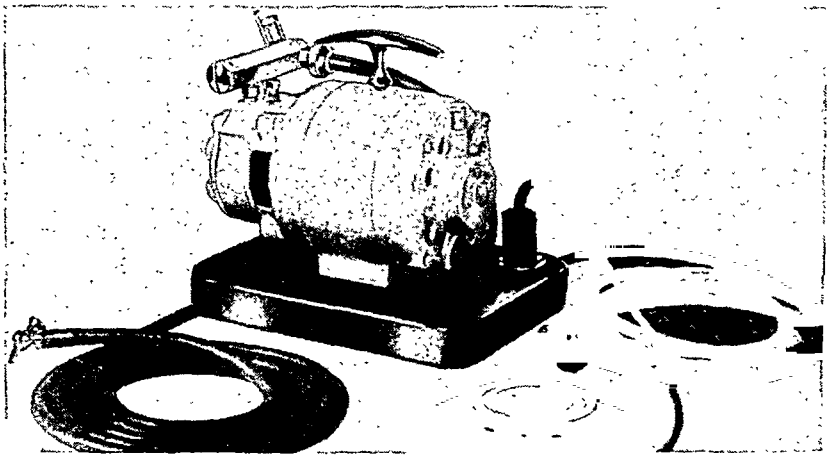
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119 Fifth Avenue, N. Y.

*Completely documented evidence on file.

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Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60, Proc. Soc. Exp. Biol. and Med., 1934, 32,241; N. Y. State Journ. Med., Vol. 35, 6-1-25, No. 11, 590-592.

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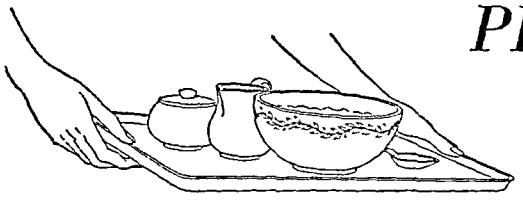
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The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

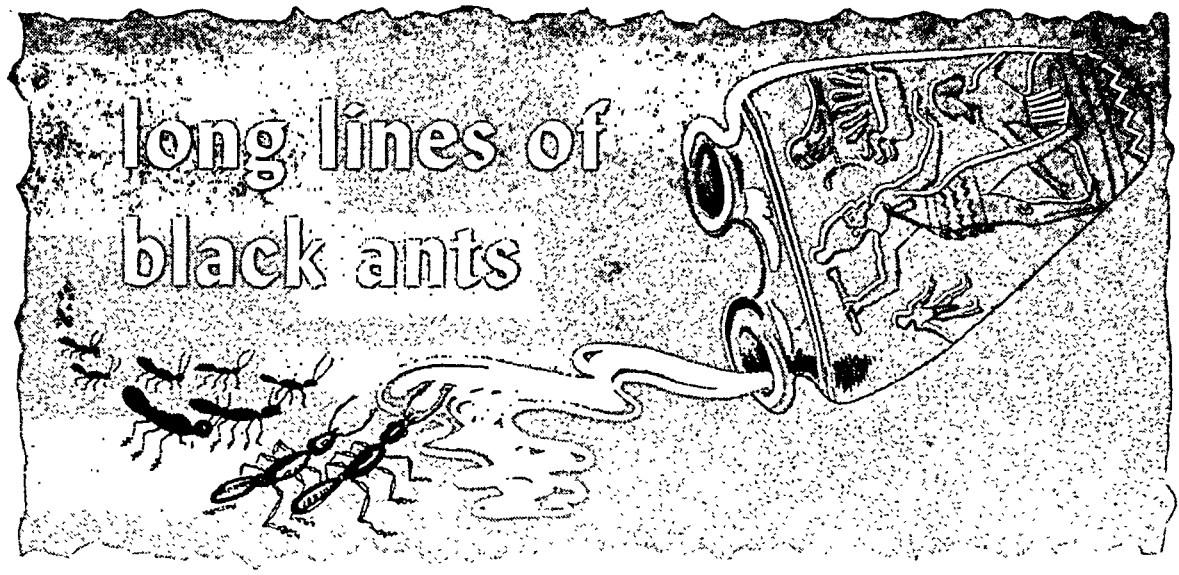
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PROTEIN	7.1 Gm.	IRON	1.6 mg.
FAT	5.0 Gm.	VITAMIN A	193 I.U.
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CALCIUM	156 mg.	RIBOFLAVIN	0.24 mg.
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**Composite average of all breakfast cereals on dry weight basis.*

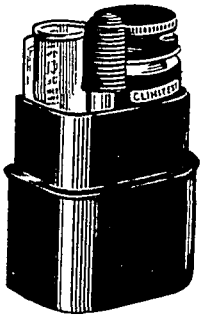
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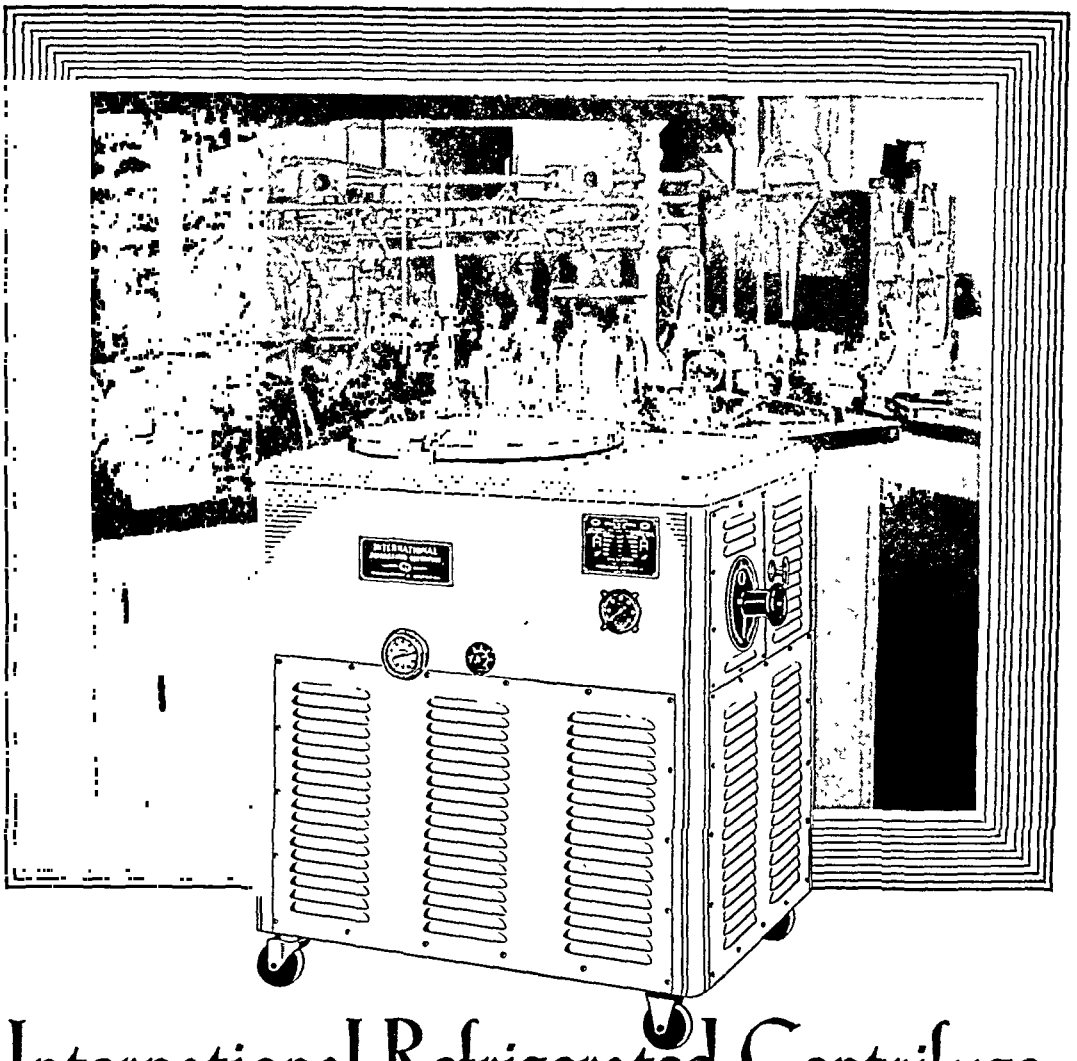
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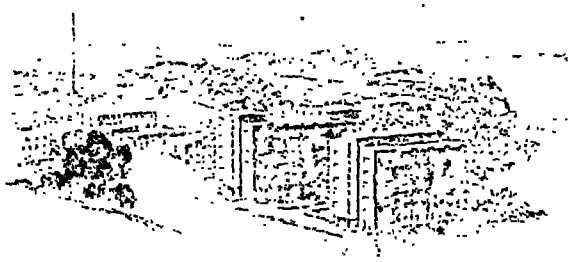
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An Outstanding Scabicide and Pediculicide

* 1. Cannon, A. Benson, and McRae, Marvin E.: Treatment of Scabies, J.A.M.A. *138*:557 (Oct. 23) 1948.

2. Wooldridge, W. E.: The Gamma Isomer of Hexachlorocyclohexane in the Treatment of Scabies, J. Invest. Dermat. *10*:363 (May) 1948.

3. Niedelman, M.L.: Treatment of Common Skin Diseases in Infants and Children, J. Pediat. *32*:566 (May) 1948.

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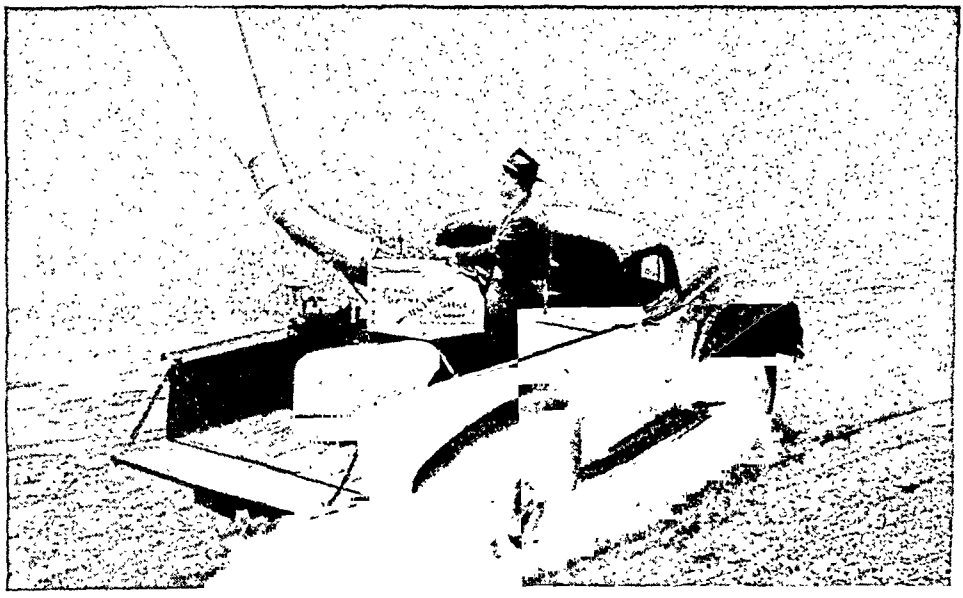
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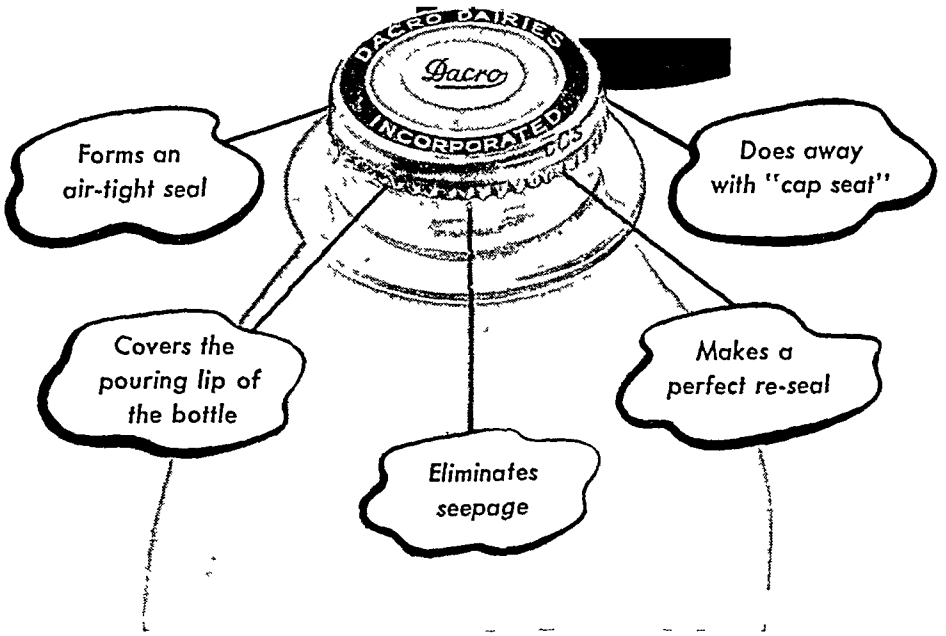
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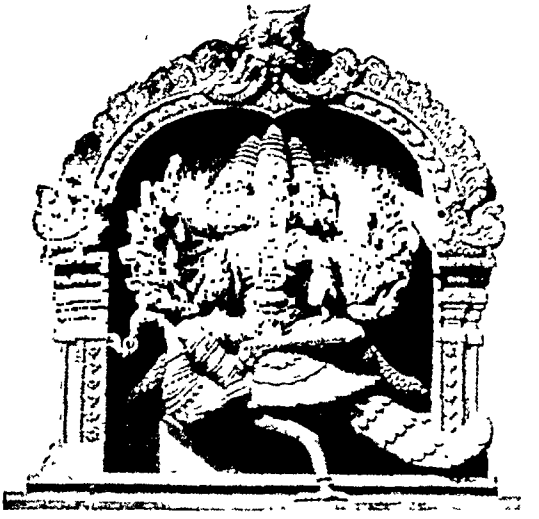
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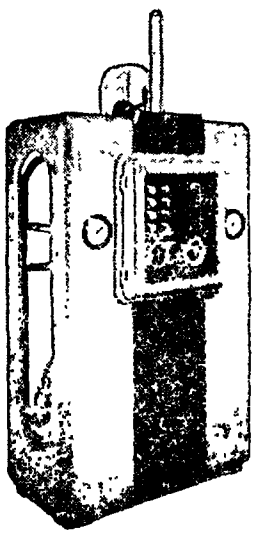
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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 May, 1949 Number 5

Recent Observations on the British National Health Service

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THE British National Health Service is neither as bad as painted by those who fear compulsory health insurance in the United States, nor as good as the British medical profession and the Ministry of Health would like to see it and hope it will become. We in the United States can learn much from this experiment now being conducted almost under our eyes, if only we can look at it without emotional blindness. While the problem of the British is in many respects not comparable to our own, there are certainly sufficient similarities in background and outlook to make their experience valuable to us in developing our own plans for more adequate medical care. Failure to see defects in the present British situation, however, may be almost as dangerous for us as would be acceptance at their face value of many current misrepresentations which are the despair of officials of the British Medical Association.

This note is in no wise intended to be an exhaustive study of the British system, but represents a report on a recent (February, 1949) appraisal of the situation with the hope that it may be useful to us in the present tense atmosphere in which discussion of federal medical care proposals is taking place. The writer was in London for a year during the war with opportunities to see existing physical facilities and get a picture of medical practice as it was carried on prior to the National Health Service Act. During the summer of 1947, nearly two months were spent in Great Britain after passage of the Act during the stages of planning for its operation. During the first two weeks of February, 1949, a third visit was made, concentrating on aspects of the Service where difficulties were reported to have arisen. Practitioners, medical society representatives, and public officials concerned with operation of the Service were asked to give their frank reactions; to point out where snags had arisen and where certain services had not developed entirely as expected. Attempts were also made to determine reactions of the general public to the plan by talking to the "man in the street" on the street and wherever else he could be induced to talk.

Before forming our judgments, certain

important concepts must be borne in mind. The broad, basic principles of the plan are generally accepted by the Conservative party as well as the Labor party. The British Medical Association also supports them as it has for a number of years, since it recommended broadening the old insurance system set up by Lloyd George in 1911–1912. Voluntary hospitals were rapidly going bankrupt and realized the necessity for government support. The several Spens Committee's proposals on compensation for varying types of practitioners have met with general acceptance.

The existing situation must also be judged on the basis of practices and standards prevailing prior to the appointed day, July 5, 1948, when the new Act became effective, rather than using current American customs of practice as our sole criterion. For example, even in the past, general practitioners had little practice in hospitals and used nursing homes for private patients requiring hospital type care. They usually had little auxiliary help in the way of clerks, nurses, or technicians in their offices, and few had laboratory services readily available for their patients. Nearly half the population was covered for general practitioner services only under the insurance scheme for employed people below a specified income limit. About one-third of the general hospital beds were in voluntary hospitals and two-thirds were operated by local governmental authorities. The wartime Emergency Medical Service developed a skeleton regional plan of hospital organization, but much of this had lapsed following the end of the war. Local public health authorities were generally responsible for running the local governmental hospitals, and services in a number of areas, especially London, had shown great improvement over conditions in these hospitals prevailing when taken over in 1929 from the Poor Law Guardians. Dental conditions among the general public were notably poor. Dentists were relatively few and even many of those licensed were more or less irregular practitioners blanketed in when the long delayed licensing programs became effective. Great numbers of people procured their eyeglasses from 5 and 10 cent stores without benefit of skilled eye examinations.

The present plan is not really an insurance scheme, since only about 10 per cent of the costs are paid by earmarked contributions from individuals and their employers; the remaining costs being paid out of general tax revenue. Participation of doctors and citizens under the new plan is entirely voluntary and provision is made for the continuation of private practice. The hospitals, however, are now essentially all owned by the government. Scotland and Northern Ireland have separate though similar schemes from England and Wales. A last, but by no means unimportant, point to be borne in mind is that it is still entirely too early really to judge the success or failure of the new plan which has not yet had even a single full year of operation.

The administrative structure itself would be considered unwieldy by American standards, but despite its complexity, it may be that the British will make it work. Four administratively distinct units render services at the local levels: The regional hospital boards (14 in England and Wales—responsible for hospitals and specialist services); the teaching hospitals (36); the local executive councils (responsible for general practitioners; dentists; pharmaceutical, and supplementary eye services); and the local public health authorities (responsible in addition to usual public health activities, for ambulance service, the provision of health centers, home nursing service—much of which was formerly the primary responsibility of voluntary agencies—domestic help in the home and "after care"). Each of

these four types of administrative units is responsible to the Ministry of Health, but there is *no* authoritative local coordinating unit.

Let us now examine the four branches of service to see where difficulties have arisen up to the present time. The teaching hospitals are administratively under regional boards in Scotland because the Scots consider them such an essential part of the regional hospital system that they could not be separated. In England and Wales, it was thought important to maintain as much autonomy for the teaching units as possible. All medical schools are full, with long lists of applicants for admission. There is no indication that young men are being deterred from going into medicine because of the new Service.

The regional hospital boards are composed of persons outstanding in the community, and have not been stacked with political appointees. Each board has a medical executive officer of high quality; many having been drawn from public health ranks. Functioning under each board are a number of hospital management committees, each with a lay executive secretary. Each committee is responsible for 8 to 10 hospitals—general, specialized, chronic and convalescent. These groups of hospitals are being integrated into hospital systems more or less complete in themselves, except that at present mental hospitals are operated by the regional boards as a somewhat separate system.

All services of specialists are under the direction of the hospital management committees and the regional boards. Neurosurgery, thoracic surgery, and plastic surgery are usually handled on a regional basis. There are no certifying boards for specialists in Great Britain at present and none are contemplated. However, a committee in each region is now reviewing qualifications to determine which men are actually specialists, and dividing them by grades of seniority. This process is to be completed by July 5, 1949, and new contracts and salaries will be based upon these reviews. A National "Awards" Committee is establishing lists of outstanding specialists who will receive additional compensation. Tables of organization are being developed to specify how many specialists of each type are needed for a given number of hospital beds and population groups. Many specialists are working on a part-time basis, because if even a small portion of their time is devoted to private practice income tax reductions are allowed for costs of operating automobiles, offices, etc.

Clinical pathological services are provided in the hospitals and are available to general practitioners only on a consultation basis at present. Patients may not be referred simply for certain laboratory services, but must be sent to a medical member of the hospital staff who determines whether or not laboratory services are considered necessary. This approval is automatic and simply constitutes a complicating administrative factor. Budgets now being presented by the regional hospital boards show considerable increases over previous operating costs. Numbers of new specialists are being requested and salaries for nurses and other personnel have increased a good deal. There is much deferred maintenance accumulated during the war years, and new buildings are being sought. It seems that the regional hospital boards in this first budgetary process, are "testing" the Ministry of Health to see how far it will allow them to go financially. Medical hospital superintendents who operated most of the governmental hospitals in the past, feel that they are not receiving suitable recognition and that the new system apparently favors lay hospital superintendents.

There are shortages of beds, and it is pointed out that the very lowest in-

come group is now in a less favorable position regarding hospitalization than formerly when welfare officers were usually able to get this lowest income group admitted without delay. Now they must take their turn, and the middle income group has an equal chance for admission to hospitals.

Specialist consultation services are available to general practitioners without too much delay except in certain special fields, such as dermatology. There is definite evidence that the hospitals and specialist service are being better integrated than was possible previously, and that attractions of the specialist service are such that a very large proportion of the younger men will want to become specialists rather than to go into general practice, due to higher compensation, greater professional opportunities, and prestige. Greatly increased numbers of candidates are applying for the higher qualifications of the Royal Colleges, the examinations of which will presumably have to become more rigid than ever before.

Each local area has its own local executive council and these councils are experiencing probably the greatest difficulties of the entire service at present. General practitioner services are paid for on a capitation basis and each practitioner will receive between $3.20 and $3.60 per annum for each patient on his list. No general practitioner may have more than 4,000 patients on his panel. There are in general, three types of general practitioners each of which has fared somewhat differently under the new system. In industrial areas where private practice in the past depended almost entirely on dependents of insured workers, nearly everyone is now on the panel, and compensation is higher than previously. Panels tend to be full and offices are crowded. Many more minor ailments are treated than formerly, and patients present themselves in earlier stages of illness than before. Mothers tend to bring their whole families to the doctor's office. When home visits are made, doctors are often asked to see more than one patient. It is not at all uncommon for general practitioners in urban areas to see 40 to 60 patients daily in their offices and to make from 6 to a dozen or more home visits. All patients on a given panel may be living within a mile of the doctor's office so that practices of this type are quite concentrated. The more experienced doctors feel they can handle 3,000 patients without difficulty. Some of them even say they can do a good job with 4,000 patients, though it requires a nice sense of discipline and experience in detecting emergency needs.

Practitioners in rural areas have suffered because of the sparse population, which prevents their caring for a full panel. Recent adjustment in the mileage fee has compensated somewhat for this problem, though it still remains difficult, and rural practitioners have in general suffered losses in overall compensation. General practitioners working in well-to-do suburban areas who depended on a relatively small number of private patients have suffered material financial losses. These men made up the very best group of general practitioners in the past, devoting more time to their patients and, by and large, having better training. Since quite high percentages of this better income group have elected to go on the panel system, these doctors have suffered as much as 50 per cent reduction in their income. Patients formerly treated on a private basis seem to expect just as much time to be spent with them, involving the various social amenities even though perhaps not necessary for professional reasons.

It is not considered ethical for a doctor to accept extra fees from a patient on his panel, though many former private patients have offered to pay extra

for special attention. When such people find this is not available to them on the panel system, a considerable number will likely return to a private patient status and thus help solve part of this problem.

Under the present plan there seems relatively little incentive for general practitioners to do a better type of work. A tapering capitation fee (perhaps $6 per patient for the first 1,000 on one man's panel) is being discussed a great deal and seems to find favor with the British Medical Association. Perhaps it has certain advantages and would at least make it possible for a physician to handle a smaller number of patients than at present without so seriously reducing his income. Young men desiring to go into general practice are having some difficulties in finding situations open to them, and this is a problem which demands correction. The system provides opportunities for young trainees to receive $2,800 per year working with a general practitioner approved for the purpose; the latter to receive $600 for providing the training. When fully implemented this training plan should have real advantages.

There are no restrictions on prescribing of drugs by general practitioners and they feel this is a very real advance under the new system. Ten or a dozen chemists interviewed at random had no faults to find with the new Service from their standpoint, even though a very high proportion of their business now comes under this heading. Not a single one of those interviewed reported instances of patients presenting a prescription for drugs and asking that cosmetics, etc., be provided instead of the medicine. It is true that many people who would have purchased minor remedies independently now go to their physician for a prescription, since these remedies are available to them under the Service without extra cost and this complicates the physician's work.

Chemists are paid on the basis of the cost of the drugs involved in a given prescription plus a dispensing fee and the cost of containers. In the London area during November, 1948, prescriptions were written under the system at the rate of $0.49 per person in the area; the average cost of the prescription was $0.54 though some of them went as high as $40 to $50 each. Every local council maintains a register of patients in its area filed both alphabetically and by general practitioner responsible for providing service. As yet there is no register set up on a national basis, though this will undoubtedly be necessary eventually.

During the period July to December, 1948, some 360,000 pairs of spectacles were provided in the London area alone. Over 2,000,000 have been provided nationally. Demands for spectacles have been much greater than expected, and there is now a lag of 3 to 4 months in providing spectacles. As this is on a fee for service basis, costs have skyrocketed; being three to four times what was estimated. A patient desiring glasses must secure a note from his general practitioner saying that they are necessary before he may be examined, but this check has not proved as much of a deterrent as was anticipated.

Dental services have also greatly exceeded expectation. Under the old insurance plan where each patient paid half of the cost of dental care, about 8 per cent took advantage of dental services each year. It was estimated that under the new scheme only 10 per cent each year would take advantage of the fully-paid services available, but actually some 20 to 22 per cent are doing so. A fee for service system prevails with fees as high or higher than those formerly charged in private practice. The Ministry of Health realized this was so but apparently felt greater incentives were needed to bring new

men into dentistry because only one-third the number necessary to provide full service for the population is available. Expectant mothers, preschool and school children are supposed to have priority dental service under the plan; this being the responsibility of the local public health authorities, using salaried dentists for the purpose. However, fees under the plan, sometimes being as high as $4,000 per month, have lured many of these salaried dentists into the ranks of practitioners. Fees were computed on the idea that a dentist could conscientiously do only about 33 hours per week of chair-side work. Actually many of them are working 60 to 70 hours per week. It has been found necessary to reduce fees to 50 per cent when they run above a specified minimum. There is little doubt that much more radical adjustments will be needed in the dental field if priorities set up are to be maintained. Obviously, there are not nearly enough dentists to meet the pressing demands of the entire population.

Local public health officers feel they have been severely "let down" under the new scheme, having been deprived of their hospital-operating functions which had become such an important part of their responsibilities in the past 15 to 20 years. Their salaries have not yet been increased as recommended under the Spens Reports, since they come from local authorities which consider recommended salaries disproportionately high compared with other local officials. Few students are applying for admission to public health schools. Even the London School of Hygiene has a greatly reduced number of students, and many others have ceased operations almost entirely. The plan calls for local authorities to provide health centers on the basis of one for each 10,000 to 20,000 of population. These centers would contain not only public health clinics but also offices for private physicians and dentists in which they might see their panel patients and for which they would pay an amount of rent as yet unspecified. Present regulations would prohibit visits of private patients to these health centers. As a matter of fact, no health centers of this type are in operation as yet, and it now appears that there will be years of delay due to rigid restrictions on building. Many feel that temporary quarters should be prepared for use as health centers, but others in authority are insisting that the health center plan be delayed until proper specially constructed buildings can be provided.

Public health laboratory services are more readily available than clinical pathological services, since there is a national system of public health laboratories which grew out of the wartime plan of regional laboratory services. These are available to general practitioners on a rather satisfactory basis.

Division of authority under the health services plan is especially striking in the field of maternity care. Regional hospital boards are responsible for maternity hospital services; local authorities for midwife services and antenatal clinics, and general practitioners may provide home delivery service on a fee basis in addition to receipts from their panel patients. There is some attempt to coördinate this and other types of services by the method of joint employment; a given obstetrician or tuberculosis specialist being paid jointly by the regional hospital board and the local public health authority. This is one type of coördinating mechanism which, it is hoped, will help to unify the service.

One may summarize certain defects which make the British system as presently constituted less than perfect. The administrative structure of operation is, to say the least, unwieldy. Attempts to make the operations democratic have in some cases reduced central authority to such a dangerously low level that proper administration and

budgetary control are proving difficult. Personnel is being drawn off from one branch of the service to another. School dentists are going into practice and public health officers into hospital service. Certainly general practitioners would be wise to attempt to become specialists unless their present lot is improved. Basic science faculties in the medical schools are being depleted because salaries for clinicians are much higher than available to them if they remain as basic science teachers. Facilities and personnel are insufficient to provide all the services which have been promised the people. There are insufficient nurses to staff even the beds presently available. One gathers the definite impression that too much has been attempted in too short a time. Not nearly enough trained administrators are available and little effort is being made to provide additional training. Education of the public seems not to have sufficiently emphasized the shortages although it is evident that the public itself is not surprised at this so far. Many people realize that it may be 10 or 15 years before a really complete service will be available to them. Health centers, basically important to satisfactory operation of the plan, are not yet provided, and there is little evidence that even experimental health centers will become available in the near future. Pilot studies to indicate the extent of demands for services have been inadequate, accounting to a considerable degree for the fact that estimates of costs were much too low. The problem of defining qualifications of specialists is proving difficult though one might have predicted that this would be by no means an easy task.

Too much paper work is being demanded of general practitioners who must sign certificates for disability payments, various types of rations, etc., in rather surprising volume. It is perhaps fair to say that by and large, general practice is being overburdened and that vigorous measures will be required to correct this situation, probably the most serious problem existing at present. Original estimates of costs have proved entirely too low and recently a deficit appropriation of some $240,000,000 additional was requested and granted. It is interesting however, that in the parliamentary debates over this request, while protesting the administrative ineptness of the Labor government the Conservatives stated unequivocally that the health service plan itself was not being opposed since it actually had been originated under Churchill's prime ministership. Even at the present rate of cost, the expenditures per person per year are approximately $30 so that it can scarcely be said that the costs are exorbitant.

There are very definite strengths in the plan which should be emphasized. Universal coverage is now established as a right. The man on the street feels this is a very valuable possession and that abolition of the "means test" has been an extremely worth-while accomplishment. The functional and geographic grouping of hospitals under management committees and the regional hospital boards will unquestionably prove of very great value. Boundaries previously existing under local authority jurisdictions and under the voluntary hospital system have been rubbed out and grouping can now be made on the basis of hospital service areas, which, of course, is much more realistic. Excellent specialist services are being built up and there seems every reason to feel that progress in this direction will be not only rapid but extremely worth while. General practitioners are now able to prescribe any drugs desired and are seeing illnesses in much earlier stages than before. Representatives of organized medicine in Great Britain state that they have been dismayed at the very unfavorable reports being cir-

culated in the United States on the present situation in Great Britain. They welcome the opportunity to point out their approval of the general principles of the plan and to indicate that administrative readjustments required to bring about improvements appear by no means to be impossible of accomplishment.

One may say then, in general, that there are both good and bad features of the British plan as it is now operating. Those in authority recognize the bad features and certainly give every impression that yoeman efforts are being made to iron out the difficulties. No one expects this can be accomplished overnight, but much hard work is being put in by both advisory committees and responsible officials to improve the system as rapidly as possible. Up to the present time the public reaction is favorable on the whole. If progress in bringing about improvements is made at a reasonable rate, it seems probable that public approval will continue.

While the British plan as a whole would not be applicable to all parts of the United States, there are many features from which we can learn a very great deal in planning for improvement in our own national health services.

Outbreak of Jungle Yellow Fever in Panama

According to information released by Fred L. Soper, M.D., Director of the Pan American Sanitary Bureau, Washington, D. C., to the public health departments of the 21 American Republics, several cases of confirmed jungle yellow fever occurred in the last 2 months of 1948 in the vicinity of the town of Pacora, Panama. The cases diagnosed by post-mortem examination are classified epidemiologically as typical jungle yellow fever; 4 of these occurred in workers who were engaged in cutting timber in the forest, and 1 in a person who had spent a week hunting in the same jungle area of Panama.

Dr. Soper, late in January, advised countries having airline communication with Panama that he believed that the jungle yellow fever there does not constitute a danger to other countries through passengers in transit. The cases of the fever were limited to workers in the jungle. He suggested that vaccination against yellow fever be required of passengers whose travel originates in Panama.

The health authorities of Panama, where no clinical case of urban yellow fever has occurred for 50 years, and where until this time no human cases of jungle yellow fever had been diagnosed, recalled some positive protection test discovered in 1941 between the Canal Zone and the Colombian border. In order to prevent the occurrence of urban cases, or cases transmitted by Aedes mosquitoes, the basic measure to be taken is the eradication of Aedes, preferably on a continental basis. According to Dr. Soper, in areas favoring the development of jungle yellow fever, the measure to be recommended is vaccination of all persons residing in those regions. He was of the opinion that there is no danger for persons who are simply in transit through cities without *Aedes aegypti.*

Can Child Accidents Be Prevented in Your Community?

D. B. ARMSTRONG, M.D., F.A.P.H.A., AND W. GRAHAM COLE

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THE fact that no immunization procedure could have prevented the accident which resulted in the fatal burning of a 2 year old child who had been playing with matches, in no way lessens the sorrow or anguish of the bereaved parents. The fact that no simple scientific method has been developed which could have prevented the deaths of about 12,000 children aged 1 to 14 who died last year as a result of accidents, in no way lessens the distress and the social and economic losses resulting from these deaths. But these facts do emphasize the responsibility of medical and public health agencies to study, develop, and apply effective measures for the control of mortality and morbidity resulting from accidents.

Although the accident death rate among insured children in the age group 1 through 14 showed a 29 per cent reduction during a recent 15 year period, this decline was not consistent and compares unfavorably with the reduction in child deaths due to disease. As a result, accidents today represent the first cause of death among children and present a major child health problem. While much remains to be learned through research regarding the underlying physical and emotional factors responsible for accidents and involved in accident proneness, still we are far from

FIGURE 1—Fatal Accidents Among Children

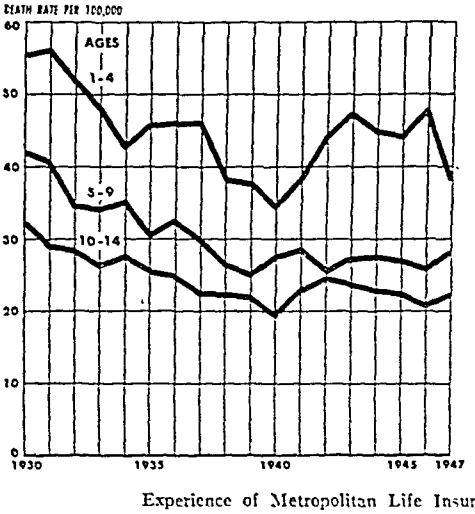
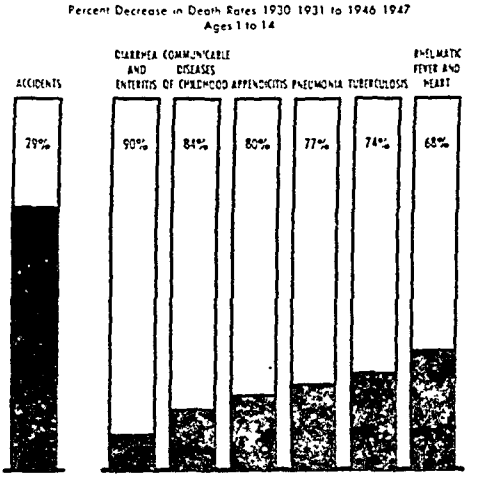


FIGURE 2—Accidents versus Certain Diseases



Experience of Metropolitan Life Insurance Co.—Weekly Industrial Department

utilizing fully our present knowledge as to the prevention and control of accidents.

National Approach to Child Safety

In an effort to stimulate more intensive interest in the subject of child safety, the Metropolitan Life Insurance Company with the cosponsorship of the Children's Bureau of the Federal Security Agency, the American Academy of Pediatrics, and the National Safety Council, has launched a continuous child safety program. It is the distinct purpose of this program—

1. To encourage parents, other adults, and older children responsible for the health and happiness of younger children, to
   a. recognize the accident hazards confronting young children;
   b. provide and maintain safe conditions for the child in the home and at play;
   c. help the child, through example and guidance, to develop safe practices.
2. To encourage public health, medical, and other interested agencies to give added emphasis to child safety in their own programs.

Child Safety—A Community Challenge

The effectiveness of any effort to reduce the frequency and severity of child accidents will in the final analysis depend upon the steps taken by each community throughout the nation to study the child accident problem and to stimulate individual and collective control measures within its area of influence. The seriousness of this problem justifies such community action on an organized and sustained basis. Although local problems may warrant special emphasis and adaptation, child safety activities, where practical, should be integrated into the overall health and safety program of the community.

As a guide to organizations or individuals interested in planning or developing a continuous community child safety program, this article lists the more important studies and activities which warrant consideration. It is recognized that all of these studies and activities may not be appropriate for every community and that additional suggestions may be developed as a result of a study of the local situation. It is hoped, however, that the following may provide a check list to aid in suggesting a practical program for your community.

ORGANIZING YOUR COMMUNITY FOR CHILD SAFETY

Sponsoring or Directing Agency

To be effective a local child safety program must be initiated and sponsored by some agency which accepts, as a major responsibility, the improvement of child health and safety in the community. Accordingly, an opportunity exists for the department of health, the health council, or the safety council, to assume this leadership, either singly or jointly, depending upon which type of leadership in a particular community is in a position to obtain the fullest possible coöperation of other agencies and to produce the most effective results.

An Organization Meeting

In addition to the leadership of the sponsoring agency, a sustained program to control child accidents in a community will require the support and active participation of such official agencies as the board of education, and the police, fire, hospital, building inspection, and park departments; as well as the coöperative efforts of nonofficial agencies having an interest in the conservation of child life. To develop this support and participation, and to discuss plans for a coöperative child safety program, a meeting of representatives of interested official and nonofficial agencies is desirable. Among the nonofficial agencies which might be invited to send representatives to such a meeting may be listed:

County Medical Society
Other Professional Societies, including Medical, Dental, and Nursing
Visiting Nurse Association
Health Organizations
Safety Council or Other Safety Organizations
Social Service Agencies
Youth Organizations (Boy and Girl Scouts, Campfire Girls, 4H Clubs, etc.)
Women's Organizations
Automobile Club
Parent-Teacher Associations
Red Cross Chapter
Service and Luncheon Clubs
Insurance Club
Neighborhood Associations
Patriotic Groups
The Local Press

The invitation to attend this preliminary meeting might be sent by the sponsoring agency, which should develop and arrange for the meeting; or the invitation might well be issued by the mayor in behalf of the sponsoring agency. A serious child accident or a series of child accidents in the community, accidents in nearby communities, or the existence of a particular local hazard to child safety will usually prove an effective motivating influence and might be given as one of the reasons for calling the meeting.

In arranging for this meeting the sponsoring agency should be prepared to present information regarding the child accident experience in the community and to outline, for discussion, some of the possible activities which might be conducted with the active cooperation of local agencies. This initial meeting should prove an excellent educational opportunity for the representatives attending, and the resulting publicity should prove of educational value throughout the community. During the meeting efforts should be exerted to create a continuing child safety committee.

SUGGESTED COMMUNITY ACTIVITIES

An Inventory of Local Organizations

As a preparatory step in planning the local child safety program, an inventory of local agency activities will be very desirable. Such an inventory might be conducted under the auspices of the newly organized child safety committee. Necessary information could be obtained through personal interviews with city officials and organization officers, or by mail questionnaires.

Those taking the inventory should seek and list information regarding the basic interest of the organization as it affects the child accident problem and its present or contemplated child safety activities. The inventory should also indicate the number of employees, members, and volunteers through whom child safety information can be disseminated; the number and type of employees or members who can actively participate by serving on committees, by investigating and analyzing accidents, by conducting surveys of environmental hazards, by preparing materials, by addressing audiences, and by handling necessary clerical work.

Obtaining Facts Regarding Child Accidents

Factual information regarding the frequency, types, and causes of child accidents in the community is essential to the development of an effective program. Such data are also necessary to the preparation of essential educational and publicity material. The collection and analysis of such data can in themselves serve as an effective educational device.

Data regarding the occurrence of fatal accidents to children are usually obtainable from the records of the local health and police departments. A follow-up of these records by a detailed questionnaire submitted to and filled in by the reporting physician (a plan followed by the Kansas State Department of Health and by the Nassau County, New York, Department of Health), or by personal interviews with members of the injured child's family, is desirable.

Programs based entirely on fatal accident data will fail to include many important causes of permanent and temporarily disabling injuries. Through the coöperation of physicians, visiting nurses, hospital and police authorities, case histories and other data regarding nonfatal injuries to children may be obtained. Questionnaires distributed through the schools and house-to-house interviews by trained interviewers have been used to collect such data.

Factual data regarding child accidents should include the age and sex of the child; the area of the community where the child lives and was injured; the place of the accident, i.e., home, school, playground, street, at work, or other specified location; the kind of accident; the nature and seriousness of the injury; the unsafe environmental conditions or practices involved in the accident. Where possible to obtain, information regarding the underlying causes of individual accidental injuries —such as contributing physical impairment of the injured, and the psychological, emotional, and sociological factors involved—is a valuable diagnostic aid.

Survey of Physical Conditions Affecting Child Safety

Information regarding environmental physical conditions which may affect child safety is essential in order that proper corrective action may be planned and undertaken. The analysis of accident data will disclose the location of some hazardous situations; observation and investigation will be necessary in order to determine other such situations, and to plan and recommend the proper remedial measures.

Among the areas justifying study in most communities to determine child accident hazards, may be included—

The Home and Its Environs

Unsafe physical conditions in and around homes are important contributing causes of child as well as adult accidents. The correction of home hazards, particularly as they are affected by child growth and development, should accordingly be considered as an essential phase of a child accident prevention program.

Although local regulations in some communities may permit fire or sanitary inspectors to enter private homes for the purpose of checking compliance with their respective local requirements, the official inspection of homes for unsafe conditions is seldom, if ever, provided for by law. Fire and sanitary inspectors, however, can render an effective community service by calling attention to unsafe conditions, particularly those affecting child safety, as noted during their authorized inspections.

Physicians and public health nurses, because of their close contact with parents, are frequently in a position to encourage the correction of unsafe conditions, particularly those affecting children.

Home inspection check lists have been used in a number of communities to encourage voluntary home inspection. These check lists have been distributed to children in the schools to take home for their parents or other adults to fill out and to return by the children.

The School Premises

Unsafe conditions on the school premises may not only be the cause of injury to children, but also may tend to offset the value of otherwise effective safety education. Preliminary inspection of school premises may be made through the coöperation of the local school and building inspection authorities. Additional assistance can usually be obtained from the local engineers or inspectors of casualty insurance companies.

Periodic inspections should be made by the school custodian. Properly supervised inspections by pupil safety com-

mittees will aid in finding unsafe conditions and will also serve as an effective teaching device.

In any inspection, special attention should be given to laboratories, shops, kitchens, and other work areas used for instruction purposes, and to play and recreational areas.

Playground and Public Recreational Areas

A periodic check of playground and other recreational equipment and the facilities provided for the protection of children at swimming pools and bathing beaches is usually warranted as part of the community child safety program.

Traffic Conditions

Frequent observations of traffic conditions on streets adjacent to schools and playgrounds, made by members of the parent-teachers association, neighborhood association, and automobile club, in coöperation with police authorities, will aid in determining unsafe conditions and in suggesting remedies. The use of schoolboy patrols, the installation of proper school stop signs, and the designation of play streets may effectively supplement the activities of the police at these locations.

The determination of safest routes for children to use in going to and from various residential areas and their respective schools, has proved a valuable means of controlling child accidents on the street and has also been used as an effective upper-grade safety educational project.

Press Publicity

Frequent references to the local child safety program and facts concerning the child accident problem of the community printed in the local press, will prove a valuable means of stimulating widespread interest and of encouraging additional activities. Such publicity might well include news items regarding various activites of the child safety program, editoral comments, signed articles or endorsement (by prominent local people), weekly analyses of local child accidents, human interest stories of child accidents, question and answer contests, photographs, cartoons, etc.

Radio

The local radio station can contribute to the child safety campaign by utilizing national program material dealing with child safety, and by arranging for special programs over the local station. These special programs might include the broadcasting of local addresses on child safety, the presentation of locally developed skits, spot announcements, interviews with prominent citizens interested in child safety, etc.

Safety Education in Schools

A continuous and effective safety program, conducted as a part of the regular school curriculum, will prove one of the most important phases of the local child safety activities. Such a program should seek to develop safe practices on the part of students and to encourage a sense of responsibility of the older-age children for the safety of the younger ones.

The integration of safety material into the health educational activities of the schools and into permanent regular curricular subjects, has usually proved most effective, particularly when proper consideration has been given to child growth and development. To accomplish these aims teachers should be supplied with proper teaching aids including current data on the local child accident situation.

The organization of school safety councils or committees among the pupils to investigate accidents, develop school safety rules, organize school safety patrols, and suggest safe routes to and from school, has proved of value in many schools. Courses in vocational training provide outstanding opportuni-

ties to incorporate child safety education as a means of protecting the child at school and of developing future safe workers. The introduction of driver training courses in the upper classes of the high school provides an additional direct means of child safety education.

Supplemental Safety Education

Red Cross chapters in many communities are in a position, through their First Aid and Accident Prevention activities, to present home safety courses for adults and junior safety courses for organized groups of children.

Meetings and Addresses

The effectiveness of the local child safety program can always be increased through the use of the spoken word. The regular meetings of local civic, service, patriotic, fraternal, neighborhood, parents, and women's groups provide an opportunity to introduce the child safety theme through scheduled addresses by competent individuals interested in the various phases of the problem. Arrangements can also frequently be made to have speakers appear before religious bodies, or material can be furnished to the religious leaders for their own use. Skits and demonstrations on child safety can be used effectively at these meetings.

To take full advantage of this method of reaching the public, a speakers bureau may be desirable.

Exhibits and Demonstrations

Exhibits of safe toys, safe nursery equipment, and other materials pertaining to child safety usually provide an effective means of instructing the public and of stimulating widespread comunity interest. Such exhibits may be used at organization meetings and may be displayed in store windows or other public places where they will be seen by large groups. Local merchants may be interested in developing and arranging for the display of such exhibit material. To stimulate community-wide interest in this project a contest might be conducted to determine the most effective and constructive exhibit displayed during a specified period. For example, a safe toy exhibit displayed in various store windows during the first week or two of the Christmas buying season, may prove of considerable value.

Distribution of Material

Effective material, booklets, leaflets, hand dodgers, etc., pertaining to child safety, distributed directly to homes, will aid materially in informing the public of the seriousness of the child accident problem and of means of preventing such accidents. In addition to material of this nature, which may be obtained from national or state agencies, locally prepared material can be used effectively. Various methods have been used for distributing material. For example, it has been furnished to children in the schools to take home to their parents; it has been enclosed with the bills of public service organizations, stores, etc.; and has been given house-to-house distribution by local representatives of insurance companies. It has also been used effectively as a teaching device by public health nurses.

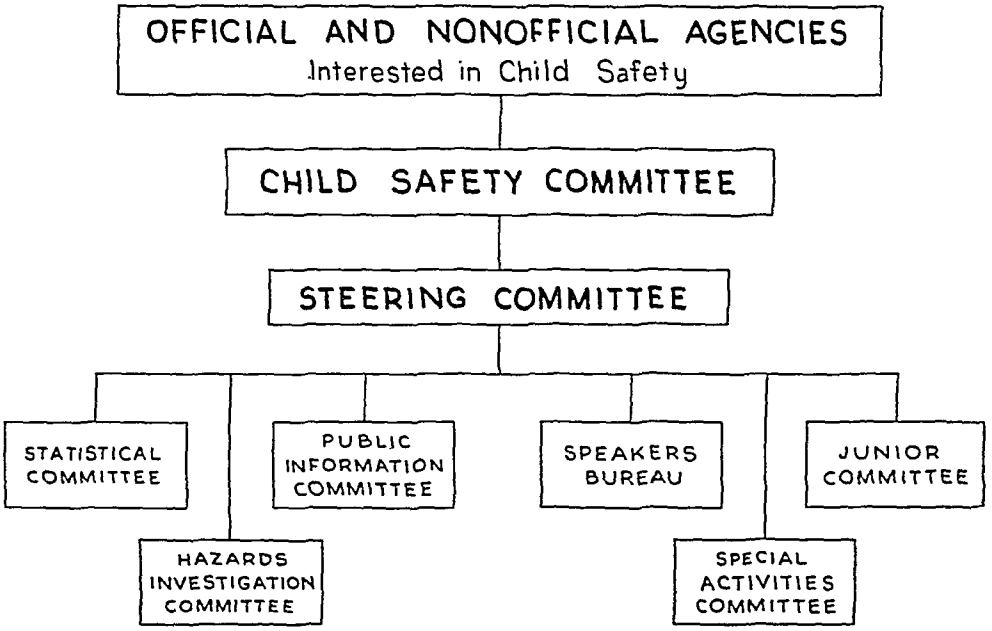
SUGGESTED PLAN OF ORGANIZATION FOR A COMMUNITY CHILD SAFETY PROGRAM

In order to plan and conduct an effective community-wide child safety program coördinating the activities of interested agencies, a definite plan of approach is desirable. The following committee structure is suggested for consideration and adaptation to the needs of your community.

CHILD SAFETY COMMITTEE

Membership — Appointed representatives of each interested and coöperating agency (see list

SUGGESTED ORGANIZATION CHART



of official and nonofficial agencies in the early part of this paper).

Functions—

To study the local child accident problem.

To plan and carry out an effective preventive program by coördinating the activities of coöperating agencies.

To appoint and guide necessary special committees or subcommittees to carry out effectively the coördinated child safety program.

EXECUTIVE OR STEERING COMMITTEE

Membership—Chairman of each special committee or subcommittee and such additional members as may seem desirable.

Functions—

To conduct an inventory of coöperating agencies (see early part of this paper).

To develop the overall policy to be followed in the child safety program.

To review the reports and recommendations of subcommittees before presentation to the Child Safety Committee for adoption and action.

To represent the Child Safety Committee in the interim between meetings.

STATISTICAL OR FACT FINDING COMMITTEE

Functions—

To collect and analyze available data pertaining to the child accident experience of the community.

To plan and conduct such studies, surveys, house-to-house interviews, etc., as may be necessary to obtain statistical facts and case examples of nonfatal disabling accidents to children.

To interpret factual data for the use of the Public Information Committee and for the use of coöperating agencies in planning their preventive activities.

HAZARD INVESTIGATION COMMITTEE

Functions—

To develop a continuing plan for the investigation and reporting of physical conditions affecting child safety in the community.

To organize and train volunteer workers, representatives of coördinating organizations, and other interested individuals, to make investigations and offer recommendations.

To develop an effective method of following up and obtaining action on recommendations resulting from investigations.

PUBLIC INFORMATION COMMITTEE

Functions—

To collect and review available publications on child safety including pertinent material on child growth and development.

To prepare and furnish material pertaining

particularly to the local child safety problem, to the local press, local radio stations, speakers bureau, school authorities, and other coöperating agencies.

To plan and arrange for the conduct of child safety training courses for professional leaders, parents, and older-age children.

To arrange for the proper local distribution of effective child safety material.

SPEAKERS BUREAU

Functions—

To prepare a list of individuals who are willing and capable of accepting speaking assignments.

To secure engagements for these speakers.

To furnish material provided by the Public Information Committee, for the use of the speakers.

SPECIAL ACTIVITIES COMMITTEE

Functions—

To plan and develop such special activities as may be deemed desirable in order effectively to keep the child safety problem before the public.

JUNIOR COMMITTEE

Membership — Representatives of the local Youth Council and of school student councils. If deemed desirable two junior committees might be organized—one on the grade school level and the other on the high school level.

Functions—

To plan, organize, and conduct youth and student participation in such pertinent activities of the Child Safety Committee as the investigation of accidents and child hazards, the development of school safety councils and patrols, the preparation of material for the Public Information Committee, and the acceptance of speaking assignments as requested by the Speakers Bureau.

SUMMARY

At the present time, accidents are the first cause of child deaths and an outstanding cause of child morbidity in this country. The reduction of child accidents during the past fifteen years has by no means approached the marked reduction of child mortality and morbidity due to disease. Accordingly, child accidents represent a major child health problem requiring further study and research and the more effective utilization of present knowledge regarding prevention and control.

The seriousness of the child accident problem presents a definite challenge to responsible public health agencies for the initiation and conduct of well organized community programs planned to coördinate the activities of all local official and nonofficial agencies interested in child safety.

Chronic Disease

The Chronic Disease Study of the California Department of Public Health *

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PUBLIC health agencies have only recently begun to face the problem of chronic disease. The need for action has been amply demonstrated. The facts concerning the aging of the population and its influence on chronic disease mortality and morbidity are all well known. These facts offer no surprises to welfare agencies, hospitals, voluntary health agencies, physicians, nurses, and the millions of families who cannot ignore the day-to-day problems of chronic disease.

Viewed historically, it is appropriate here in Boston to note that the first significant attack on this problem by a state health department was that launched in Massachusetts in 1926. Since that time, other states have entered this field but for the most part their activities have been limited to cancer control.

Recent events provide concrete evidence of growing public health concern with the problem of chronic disease. First, the American Public Health Association, the American Medical Association, the American Hospital Association, and the American Public Welfare Association, working together in 1947, developed and published a basic, joint statement of principles entitled "Planning for the Chronically Ill."[1] It is noteworthy that the subject of chronic disease brought these four groups into a coöperative working relationship for the first time.

A second evidence of public concern about chronic diseases is the emphasis given this subject at the recent National Health Assembly. A special section was devoted to this topic. In addition, the section devoted to Local Health Units listed chronic disease control as one of the seven basic activities of health departments.

A third event, also of primary significance, is the cognizance of the problem taken by Congress through passage of the act establishing the National Cancer Institute and the National Heart Act with the appropriation of funds to implement these acts.

These events leave no doubt as to the growing interest in the challenging field of chronic disease.

It was a realization of this growing interest and of the increasing magnitude of the problem involved that was the genesis of the chronic disease investigation in California.

INITIATION OF CANCER CONTROL PROGRAM

In August, 1946, the California State

* Presented at a Joint Session of the Epidemiology, Health Officers, and Statistics Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

Department of Public Health initiated a cancer control program through the use of federally allotted funds. Responsibility for this activity was placed, not in a cancer control unit, but rather in a newly created Chronic Disease Service. This was done in recognition of the fact that cancer is but one of many chronic diseases which may be subject to the same general public health approach. It was realized that the organizational pattern developed for cancer control may also be useful in programs for heart disease, diabetes, and other chronic diseases. Health departments have developed techniques and specialized personnel in such fields as statistics, nursing, health education, laboratory, and administration. Once used principally for communicable disease control and then extended to other areas, these techniques and personnel are now being mobilized for cancer control. They are equally applicable to the other chronic diseases.

LEGISLATIVE RESOLUTION

As indicated above, the program in California was launched with federal cancer control funds. In order to determine what the state's interest should be in the broad field of chronic diseases, the California Legislature, in June, 1947, passed a Resolution directing the Department of Public Health to "investigate the problems involved in the reduction of deaths and disability from cancer and other chronic diseases." The department was directed to "report to the 1949 general session of the Legislature the results of its investigation and make recommendations as to a program for the reduction of such deaths and disabilities and the costs thereof."

ADVISORY COMMITTEE

To guide the department in this chronic disease investigation, an Advisory Committee was appointed by the State Director of Public Health. The committee includes prominent representatives from professional fields, such as the Chairman of the Council of the California Medical Association, the Administrator of Alameda County Hospitals, the Medical Director of the Los Angeles County Department of Charities, the Director of the State Department of Social Welfare, the Medical Director of the Pacific Branch of the Metropolitan Life Insurance Company, the Health Officer of a county health department, an official of the California Osteopathic Association, and the Dean of the School of Public Health of the University of California. Community interests, such as business, farm, labor, local government, parent-teachers associations, and voluntary health and welfare groups are likewise well represented.

To date, the committee has met five times. The first meeting was in December, 1947, and subsequent meetings were held in March, June, September, and November of this year. The committee will meet again early in December to review a draft of the report to the Legislature. This will include such recommendations as may be decided upon by the committee.

The committee has demonstrated a keen interest in the problem. It has called for at least six meetings, rather than the three originally suggested. Attendance at the day-long meetings has been excellent. In addition to formulating general policies for the investigation, the committee has plunged into many important detailed aspects of the work. For example, it prepared a list of diseases to be included in morbidity and mortality studies and it examined the particulars of the state rehabilitation program and other present programs relating to chronic disease. Individual committee members worked with the Chronic Disease Service staff in developing schedules and questionnaires used in the investigation. At the committee's suggestion, the task of preparing recommendations for inclusion in the report

to the Legislature has been parcelled out to individual committee members who will submit drafts to the committee as a whole.

NATURE OF STUDY

The chronic disease investigation is proceeding along two fronts. On one hand, consideration is being given to the problems more or less common to all chronic illness, such as hospitalization, rehabilitation, and custodial, nursing home, and home care services. On the other hand, technical advisory groups, auxiliary to the general advisory committee, are directing special attention to the problems relating to particular diseases, such as cancer, heart disease, diabetes, alcoholism, rheumatism, and dental disease.

An attempt has been made to secure information in the following general fields:

1. To obtain an estimate of the problem as determined from a study of morbidity, mortality, and other data.
2. To secure information on the needs, particularly of services and facilities, for such items as health promotion, prevention of diseases, treatment, rehabilitation, and research.
3. To obtain an estimate of resources presently available.
4. To arrive at recommendations concerning action to be taken.
5. An estimate of the costs.

The methods of the investigation have included a study of pertinent comparable investigations carried out in California and elsewhere, demographic studies, securing of expert opinion from a wide variety of individuals and agencies involved in this field, an intensive review of all present services and facilities for the care of the chronically ill, and, finally, detailed studies in certain areas by technical advisory groups.

A problem confronting all chronic disease studies and investigations is the lack of current data on chronic disease morbidity. In previous studies, the National Health Survey data and ratios have been the principal source of information. The National Health Survey is now twelve years old, and in certain other respects not entirely satisfactory.

For the present investigation, current morbidity data have been available from the California Disability Insurance Program. Approximately three million employed persons are eligible for benefits under this program which compensates, in part, for wage loss due to non-occupational illness. Diagnostic information, available from physicians' statements on claim forms, can be related to demographic characteristics of the claimants as well as to the duration and amount of benefits paid. It is of interest to note, for example, that of the $15,000,000 paid out in benefits during 1947, the first year of operation, approximately one-half was paid for chronic diseases.

Although disability insurance data have proved valuable, obviously they do not give the complete picture of chronic disease morbidity. These data pertain only to illness which occurs in a limited section of the population, and the information is further limited by administrative and legal features of the program. In order to obtain more adequate current morbidity data, that is, data applicable to the general population, consideration is being given to other sources within the state.

We have also been fortunate in having available both the data and the recommendations of the California Hospital Survey completed in 1947. This survey is of particular significance to the present investigation because it presents recent information, thinking, and planning on chronic disease hospital facilities not as an isolated problem, but rather as part of the overall problem of providing adequate hospitals and related facilities in California.

The Joint Statement on "Planning for the Chronically Ill," the statement drafted by the four national organizations last year, has also been helpful.

The Joint Statement was used by the Advisory Committee as a guide in planning the investigation; and it was also used in designing a schedule for a special survey of facilities and services for chronically ill welfare clients in sixteen California counties.

A somewhat different use of the Joint Statement was made in the course of obtaining expert opinion during the investigation. Letter questionnaires were sent to presidents of county medical societies, county welfare directors, public and private hospital administrators, local health officers, executives of voluntary health and welfare agencies, presidents of local osteopathic associations, and county grand jury foremen. The questionnaires, prepared in consultation with appropriate state organizations, were accompanied by copies of the Joint Statement. In this manner, over 500 copies were distributed to persons whose positions make them particularly important in the development of a chronic disease program. By the use of the Joint Statement, however, the Advisory Committee has made it clear that it feels in no way obligated to accept all or any of the broad principles therein enunciated. The committee plans to arrive at its own conclusions on the basis of the findings of the investigation.

The Disability Insurance data, the California Hospital Survey data and recommendations, and the Joint Statement have all been helpful. Of especial importance, however, has been the aid of technical advisory groups for the specific chronic diseases, particularly cancer, heart disease, diabetes, and alcoholism. The Cancer Commission of the California Medical Association, which has made extensive contributions to cancer control in the state over a 17 year period, agreed to prepare a report in its sphere. Likewise, the Heart Advisory Committee of the California Tuberculosis and Health Association is serving as a technical advisory group in its field. With respect to diabetes, in the absence of a state organization, individual members of the American Diabetes Association were consulted and assisted in developing this section of the report. When alcoholism was proposed as a disease deserving of specific attention, the California Medical Association appointed a special committee on the subject.

Members of the medical profession have been devoting many long evenings and week-ends to the difficult problems arising in the fields of their particular clinical interest. Each of the technical advisory groups is defining the objectives of a program, suggesting methods of attaining these objectives, and making specific recommendations on program content and method. These recommendations, in report form, are being submitted to the general advisory committee for incorporation, in such form as the general committee may designate, into the report to the Legislature.

Close working relationships established between these technical groups and the State Health Department staff have proved highly beneficial. These relationships, exceedingly useful during the investigation, offer great possibilities for effective guidance and coöperation in any program which may emerge.

Before concluding this statement, it should be pointed out that while these investigations are under way, the Chronic Disease Service has been gradually working into an operating program. Main emphasis thus far has been on cancer. This control program is being developed in coöperation with the Cancer Commission of the California Medical Association and the California Division of the American Cancer Society. As part of this program, a Tumor Registry has been set up. Hospitals, having in total 33 per cent of the general hospital beds in the state, are submitting cancer case reports to the Registry. Since its inception in 1947, over 20,000 case reports have been received. Follow-up of these

cases is being done by the reporting hospitals, and death clearance is carried on by the Vital Statistics Section of the State Department of Public Health.

Professional education has constituted another phase of the cancer control program. Teams of cancer experts from the medical centers in the state have conducted a number of symposia for physicians in the non-metropolitan areas of the state. A film demonstrating the proper method of examining the breast for cancer was produced and is now being shown. Development of the cytologic technique for cancer detection was stimulated in California, at first, through the training of physicians in eastern centers. This year, assistance is being given to a training center for physicians and technicians within the state.

In addition to these educational measures, surveys of facilities and services for cancer control have been carried out in coöperation with county medical societies. These have been completed for most of the larger counties, and work is now progressing into the smaller counties.

As would be expected, the Chronic Disease Service is keenly interested in the development and use of methods and techniques for early detection of any of the chronic diseases. In this connection, there is special significance in a recent multiphasic survey conducted in San Jose, Calif., by the Santa Clara County Medical Society, the San Jose City Health Department, and the State Department of Public Health. Although the details and results of this survey will be reported elsewhere, the objectives and approach will be of interest to this audience. The survey was set up to determine the feasibility of combining some of our well established public health screening programs with the newer techniques being developed for the chronic diseases. Instead of screening for a single disease entity, a battery of tests was arranged to screen for a number of diseases. The battery included, in part, miniature chest x-rays, which were read specifically for cardiac abnormality as well as for pulmonary pathology, blood and urine tests for diabetes, and a serologic test for syphilis.

SUMMARY

In summary, this paper has attempted to describe the activities of the California State Department of Public Health in the field of the chronic diseases.

In 1946, a cancer control program, initiated with the use of federally allocated funds, was set up in a newly created unit designated as the Chronic Disease Service. In 1947, the Legislature directed the department to conduct a chronic disease investigation. In carrying on this investigation, the department has been fortunate in having available the current morbidity data from the State Disability Insurance Program, the data and recommendations from the recent California Hospital Survey, the Joint Statement on "Planning for the Chronically Ill," and of even more fundamental importance, the services and active interest of a general advisory committee and of several technical advisory groups.

REFERENCE

1. Planning for the Chronically Ill *A.J.P.H.* 37, 10–1256 (Oct.), 1947

Chronic Disease

Chronic Disease as an Industrial Hygiene Problem *

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THIS paper reports briefly on the use of vital statistics in industrial health administration and practice. Medical programs in industrial establishments vary in their natures and extent, depending upon the motive of the employers, the wishes of the employees, and the influence of the physicians in charge of their medical programs. In some, surgery predominates (the care of compensable injuries); in others, medical care is outstanding; and in still others, the objective is protection of employee health.

Industrial medical programs of the last mentioned kind are sometimes known as health maintenance programs, occupational or industrial health, industrial hygiene, and occasionally occupational hygiene or medicine. They are becoming increasingly useful to industry and society because they help the employed people to preserve their health, and as a consequence of their growing importance, physicians skilled in this kind of industrial practice are coming to be recognized as specialists. Industrial medicine of this type is really preventive medicine, or, if you prefer, public health, and plant physicians who follow such practices are regarded as the health officers of the plants in which they serve.

It is the health maintenance type of industrial practice that records and studies vital statistics of the employees; and fortunate indeed is the industrial doctor who has such statistical information regularly available.

Industrial vital statistics should include death rates and non-occupational disability rates of the plant population, as well as the information on occupational injuries and diseases which doctors usually collect. It is assumed, of course, that statistics of occupational diseases and injuries are at all times carefully gathered and studied, even though relatively of small consequence compared with the non-occupational sicknesses. Even disability rates from the non-occupational injuries far exceed those of the occupational. In other words, the employed people of the United States are much safer in their places of employment than they are elsewhere, and their non-occupational sickness rates are far in excess of those of the occupational diseases.

In some industries the disability rates on occupational diseases are now as low as 6 minutes per employee per year; while non-occupational sickness rates may be as low as 5 days per employee per year. It is, therefore, clearly evident that regardless of progress, the important industrial health problem is, in

* Presented before a Joint Session of the Epidemiology, Health Officers, and Statistics Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November, 11, 1948.

TABLE 1

Non-Industrial Disability Rates per 1,000 Male Hourly Employees—Year 1947

	Age Groups							
Chronic Diseases	*Under 20*	*20–29*	*30–39*	*40–49*	*50–59*	*60–69*	*70 & Up*	*All Ages*
Respiratory	1	1	2	2	4	6	3	2
Cardiovasc Renal	0	1	3	7	16	33	48	6
Genitourinary	0	1	1	1	1	1	1	1
Organs of Movement	2	3	7	13	19	25	31	9
Nervous System	3	3	5	6	6	10	14	5
Cancer	0	0	0	1	3	6	7	1
Assimilative	0	1	1	2	3	7	9	2
Total	6	10	19	32	52	88	115	26

(The above rates exclude disabilities lasting less than a week.)

Respiratory includes tuberculosis of respiratory system, asthma, and hay fever
Cardiovascular-Renal includes pericarditis, endocarditis, organic heart diseases angina pectoris tachycardia, aneurysm, embolism, phlebitis, varicosities, and nephritis
Genitourinary includes nephrolithiasis and pyelitis
Organs of Movement includes chronic rheumatism, myalgia, and neuritis
Nervous System includes neurasthenia, paralysis, cerebral apoplexy meningitis, insanity, and herpes zoster
Assimilative includes anemia and diabetes

reality, a public health problem and not an industrial one.

Industry has a great deal at stake in the health of the employees, and for that reason modern industrial medicine is allied with public health and it uses public health methods. The Corporation with which the writer is associated collects vital statistics currently, and makes monthly and annual studies of the causes of death, as well as sickness disabilities in its employees. As the employees are well distributed throughout the United States, the statistics can be regarded as fairly representative of people employed generally in the mechanical trades. While the health maintenance program of this Corporation follows conventional procedures, certain of its special disease control functions vary from year to year in accordance with the experience and trends which have featured each previous year.

For example: When disabilities from pulmonary tuberculosis, appendicitis, and pneumonia were high, special efforts were made to assist employees in the prevention and control of those diseases. During the war, to use another example, special venereal disease programs were set up. In short, using the language of industry, the medical de-

TABLE 2

Non-Industrial Disability Rates per 1,000 Female Hourly Employees—Year 1947

	Age Groups							
Chronic Diseases	*Under 20*	*20–29*	*30–39*	*40–49*	*50–59*	*60–69 (a)*	*70 & Up (b)*	*All Ages*
Respiratory	2	3	2	2	0	2		3
Cardiovasc-Renal	3	4	7	11	11	18		7
Genitourinary	2	2	3	2	2	2		2
Organs of Movement	4	8	17	19	31	32		15
Nervous System	10	27	30	21	22	0		26
Cancer	0	1	1	2	3	7		1
Assimilative	10	10	0	8	0	18		9
Total	31	55	69	65	78	81		63

(The above rates exclude disabilities lasting less than a week.)

(a)—Rates do not follow pattern because exposure was less than 500 man years
(b)—Rates not shown because exposure was less than 100 man years

TABLE 3

Non-Industrial Death Rates per 1,000 Employees—Year 1947

	Age Groups							
Chronic Diseases	*Under 20*	*20–29*	*30–39*	*40–49*	*50–59*	*60–69*	*70 & Up*	*All Ages*
Respiratory	0	0	0	0	1	1	1	0
Cardiovasc.-Renal	0	0	1	2	7	15	38	2
Genitourinary	0	0	0	0	0	0	0	0
Organs of Movement	0	0	0	0	0	0	0	0
Nervous System	0	0	0	0	1	3	11	1
Cancer	0	0	0	1	2	6	12	1
Assimilative	0	0	0	0	0	1	1	0
Total	0	0	1	3	11	26	63	4

partment engineers a new industrial health model each year, and the specifications of each are based on the previous year's experience as shown in the vital statistical studies.

The procedure is simple, but it is logical and effective. To illustrate: Tables 1 and 2 show the chronic non-occupational disabilities occurring in 186,000 male and 34,000 female employees respectively during the calendar year of 1947.

Strangely, and perhaps unexpectedly, the most important source of chronic disability last year among males was in diseases of the organs of movement, such as joints, bones, muscles, and nerves. They included chronic rheumatisms, myalgia, arthritis, and neuritis.

As shown in Table 3, which records the death rates of approximately 300,000 male and female employees, diseases of the organs of movement are not causes of death, only of impairment and disability. That finding is significant and the conclusion is obvious. The industrial medical program should give special consideration to the prevention and control of the rheumatisms and other diseases affecting the organs of movement. These take priority, and all examinations, consultations, and health education give special attention to them.

Scanning Tables 1 and 2 further, the industrial physician is impressed by the prevalence of diseases of the nervous system in women, the ratio being five times that of the men. This is an observation of great significance and important in the determination of the medical program. The industrial doctor is also impressed by the high rates of diseases of the heart, blood vessels, and kidneys in both sexes.

The present industrial health maintenance program is, therefore, engineered to assist management in furnishing healthful working conditions and environments, which is a routine year-in and year-out function of the industrial medical departments, and to help the employees in their efforts to prevent and control chronic degenerative diseases, giving particular attention to the rheumatisms and diseases of the nervous and vascular systems.

Scanning the mortality table (Table 3) which contains data from an industrial population of 300,000 people, one notes that the long-range industrial medical program must give attention to cancer as well as the other disability sources mentioned above.

It is of passing interest to observe that the more we study industrial vital statistics, the more we realize the importance of gerontology and geriatrics. But those subjects are beyond the limited purview of this brief paper.

The modern industrial health maintenance program is organized to furnish the following services:

1. Diagnosis and treatment of all *occupational* injuries or illnesses
2. Temporary care of minor non-occupational

ailments and First Aid in non-occupational emergencies
3. Consultations for necessary medical advice
4. Assistance in the diagnosis and control of tuberculosis and other communicable diseases
5. Examination at the time of employment to aid in proper placement on a job for which the employee is best suited
6. Periodic examinations to aid in the maintenance of the employee's health
7. Granting of sick leaves and approval of return to work
8. Plant inspection and control of possible sources of occupational diseases

These, however, vary from year to year in accordance with results and trends shown by studies of industrial vital statistics.

The Participation of Official Health Departments and Coöperating Voluntary Agencies in a National Program for Home Safety*

The American Public Health Association, the U. S. Public Health Service, and other national health agencies to a total of 37 are members of the Home Safety Conference. The following declaration bearing on the participation of health departments and voluntary agencies as adopted by the Home Conference of the National Safety Council is reprinted herewith.

Accidents in the home are responsible for more deaths and injuries than any other accident classification; more than 30,000 people are killed and more than 5,000,000 injured every year in home accidents.

In considering what to do about this enormous accident toll, the Home Conference is well aware of the recent policy statement by the National Safety Council's Board of Directors, pointing out that "the size and complexity of the accident problem require the acceptance of responsibility not alone by individuals but by organizations and agencies, such as are found in agriculture, transportation, business and industry, civic enterprises, health and welfare work, education, government and labor."

The particular role of government agencies in safety has been well established for many years in some fields. For example, police, motor vehicle, and highway departments are recognized as having primary responsibility for traffic safety. Likewise, industrial and labor departments administer laws for industrial safety.

The last few years have seen an aroused interest in safety on the part of official health departments, on the community, state, and national level. While this interest has by no means been exclusively in matters of home safety, home accident prevention has been by far the most important target of health department work in the field of safety.

The Home Conference views this increasing safety interest on the part of health departments with appreciation and enthusiasm. In particular, the Conference wishes to recognize the very important part which official health agencies can play in the promotion of home safety. Public health departments have developed over the years many close contacts with the homes of our citizens. In the control of communicable diseases, public nursing services, general health education, and many other activities, health departments have developed and maintained channels of contact between health departments and the home.

With these facts in mind, we call upon official health departments throughout the country to expand their efforts in the field of home safety. In doing so we have no thought that these departments will or should be uninterested in other phases of safety, nor do we have any thought of discouraging the interest of any other governmental unit or of any non-governmental safety agency in home accident prevention.

In calling for an expanded program of home safety by health departments we wish to emphasize our belief that the greatest success can be achieved only through the cooperative and coördinated efforts of official agencies and of voluntary safety and health agencies working together. The Home Conference, we believe, offers an ideal medium for achieving such coördination and coöperation in home accident prevention.

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Chronic Disease

The Use of Statistics in Cancer Control Programs *

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THE words "cancer control" imply that an effort is to be made to prevent any increase in the incidence of cancer, to attempt to lower the present incidence, and to improve methods of therapy to the extent that persons who develop cancer rarely will be disabled or die from its effects. Furthermore, the word "control" implies ability to measure the success or failure of these efforts, since without quantitative measurements there can be no certainty that control is being achieved. Statistical studies and investigations, thus, are an essential part of a cancer control program.

Statistical indices should be devised to measure the success of every element of a cancer control program whether it be detection centers, diagnostic clinics, case finding, use of public health nurses, development of diagnostic tests, lay education or professional education. The development of a quantitative measure of achievement should be an integral part of the initiation of any new aspect of the cancer control program; otherwise we cannot determine the extent to which it is contributing to the control of cancer. It is obviously impractical to discuss in detail at this time the possible applications of statistics to every part of a cancer control program. Consequently this discussion will be limited to one or two applications of statistics and will attempt to show how these applications can be used to determine the success of control measures.

In developing and organizing a cancer control program, information concerning the incidence and prevalence of malignant neoplasms and the characteristics of people who contract cancer is essential. These data not only describe the magnitude of the existing problem but also provide a basis for assessing the future success of the program. Mortality statistics alone are not satisfactory for this purpose. Such data indicate the failure of present efforts to cure cancer once it has occurred. They do not adequately measure success either in preventing cancer or in curing existing cases of disease. As methods of prevention and cure of cancer improve, mortality records will become less and less useful as a sole measure of success, since they do not reveal which elements of the control program are contributing most substantially to the decline in mortality. This does not mean that mortality data are of little or no value and that their analysis should be neglected. On the contrary, they provide a large amount of useful information. But a more direct measure of the success of cancer control activities is needed, since these ac-

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tivities are directed toward cancer in the living population.

This realization has stimulated interest in the reporting of cancer cases and establishment of cancer registers. About one-half of the states have made cancer reportable by law or regulation. A few additional states are attempting to obtain morbidity reports on a voluntary basis. Some states have patterned cancer morbidity reporting after that for communicable diseases. A single report is obtained after diagnosis of a case of cancer; no additional information about the subsequent history of the case is received except that the fact of death may be established by checking case reports with death certificates. Other states have patterned cancer morbidity reporting after tumor registries such as those which are maintained by the American College of Surgeons and the Army Institute of Pathology. Before discussing the merits of these two systems, I would like to set forth the objectives of morbidity reporting and the role it can play in cancer control.

One of the objectives of statistical reporting of morbidity from cancer is to obtain information concerning living cases of cancer at the earliest possible stage in the development of the disease. This information should include among other items the total number of new cases diagnosed, the geographic distribution of these cases, their demographic characteristics such as age, sex, color, and marital status, the type of neoplasm, the primary site, the method of diagnosis, the stage of the disease at the time of diagnosis and identification of who made the diagnosis and provided treatment. Since many cancer cases are seen by more than one physician or hospital, the name and address of each case is essential not only to eliminate duplicate reports but also to obtain subsequent information concerning the outcome of therapy.

I do not believe that a routine morbidity reporting system should attempt to include more than a very few items beyond those mentioned above. Experience has demonstrated that extensive or complicated forms will not be accurately completed, and that resistance to reporting increases rapidly as forms become increasingly complicated. A routine reporting system is not the proper means for the collection of detailed data for the epidemiological study of human cancer although it can provide the basis for the selection of a representative sample of cases for intensive investigation of specific problems.

While the gross number of reported cases is of some interest, the full value of morbidity statistics can be obtained only by relating them to the population from which they are drawn, through the computation of rates per unit of population. To obtain reliable conclusions concerning the incidence and prevalence of cancer, morbidity reports must either include all cases, or a representative sample of all cases, diagnosed in a population of known size and composition. The purpose of morbidity reporting is defeated by incomplete or inaccurate reports.

To achieve completeness, the reporting system should cover all medical facilities, physicians, pathologists, radiologists, hospitals and clinics. Although an increasing proportion of cancer cases undoubtedly are admitted to a hospital or clinic at some time during the course of the disease, a significant number, in some areas as many as one-fifth of all cases, are treated exclusively in physicians' offices. Consequently hospital cases are not only an incomplete count of all cases but they also may be unrepresentative with respect to type of neoplasm, primary site, and possibly other factors.

Cancer morbidity reporting is incomplete if it provides only for a single report on a case. In order to evaluate therapy, follow-up reports should be ob-

tained for an indefinite period of years subsequent to treatment. The standard period for follow-up is 5 years; nearly all "cure rates" are based on 5 year "cures." Incidentally most of these are survival rates and not cure rates as they are usually called. I believe that it is unwise to limit follow-up to 5 years after treatment. A case of cancer is not cured until the possibility of the recurrence of the disease is negligible. The period of time necessary to establish this fact probably varies with the type of neoplasm, primary site, method of treatment, and other factors. Cases should be followed until their probability of dying is no greater than that of persons who have never had cancer, whether this period of time be 5, 10, 15 or an indefinite number of years.

The purposeful collection at regular intervals of information about cancer cases can be accomplished by the establishment of a cancer register. As used here, the term, cancer register, means the entire file of information concerning cancer cases, beginning with the initial report and continuing with supplementary information purposefully collected at regular intervals. It is simply selected facts from the complete history of the cases kept up to date.

A cancer register is more than a file of index cards with names on them. A register starts with a case report and becomes a register only by the addition of subsequent information purposefully collected at regular intervals. To be most successful, the register should be an integral part of an operating program and should be located where the local program actually is carried on. This may be the state health department, the local health department, or both. Although a large amount of statistical information useful in a cancer control program can be obtained from a cancer register, a register is not primarily a means for collecting data for epidemiological studies.

A cancer register originating with a morbidity case report should be distinguished from diagnostic and pathological cancer registries. These latter are collections of case histories including pathologic material, sections of tissue, and relevant clinical history, findings, and results submitted by coöperating physicians. The sponsor of the registry receives the material for permanent file, reviews diagnoses, provides or obtains consultation on the pathology of difficult cases, prepares the material so that it can be used for study and research and, in some instances, conducts follow-up studies. The essential requirement for this registry is that each case be completely and accurately documented. It is not necessary that the cases reported provide a random sample of all existing cases, since the primary purpose is an accurate description of individual cases and not a basis for inferences concerning the entire population of persons with malignant neoplasms. A registry of this nature can be successfully maintained by the voluntary submission of material by clinicians and pathologists.

The primary uses of diagnostic and pathologic registries are to assemble data for research, especially in pathology, to furnish illustrative and demonstration material for medical schools, and to assist in the training of pathologists and clinicians. Frequently, expert diagnostic advice also is given by the agency operating the registry. These registries cannot provide reliable statistical information concerning morbidity from cancer of the kind described above. Due to the selection of the cases included, the data will not yield an unbiased estimate of the relative incidence of different types of neoplasms, nor can they form the basis for the computation of survival rates representative of the total population of cancer cases. A tumor registry can provide a very valuable specialized service. It does not furnish the type of statistical

data necessary for the evaluation of a cancer control program. The distinction between the function of this type of registry and that of a register growing out of a cancer morbidity reporting system should be kept clearly in mind so that each may be assigned its proper role in any program.

If it is to be most useful, a cancer register must be closely integrated with the entire cancer control program. Many elements of the program can be built around and guided by the statistical data from the morbidity reports. Moreover, the interest and coöperation of physicians and hospitals can be maintained by regularly making available to them not only summaries of their own experience but also composite summaries of the entire population included. The statistics should be collected, not as an end in themselves, but for the use which can be made of them.

If organized along the lines indicated above, a cancer morbidity reporting system and register can measure the magnitude of the problem by means of the number of new cases diagnosed and the number of cases treated per unit of population, the location of the problem by the geographic distribution of cases, the results of education and case finding activities by the stage of the disease at time of diagnosis, improvements in diagnosis by the proportion of diagnoses established by histological or other standard methods, advances in therapy by survival rates, adequacy of case holding by the proportion of cases which regularly return for reëxamination, and the success of control measures by trends in the incidence of different types of neoplasms. These are only some of the many services which can be rendered by the reporting of cancer cases.

Before starting cancer morbidity reporting and establishing a cancer register, a health department should formulate clearly its objectives and the uses which it plans to make of the data collected. The fact that some state or city has a particular plan in operation is no guarantee that that plan will meet the needs of another area.

From what has been said above, it should be apparent that a cancer reporting system patterned after that for communicable diseases whereby a single report is obtained on each case can fulfil only a limited number of the functions which have been discussed. Moreover, it fails to provide for one of the most essential services, subsequent follow-up of cases. On the other hand, a voluntary, partial-coverage cancer register, not operated as part of a complete morbidity reporting system, can provide follow-up information but cannot provide the other general statistical data which are equally important. Such registers fail to measure completely the magnitude of the problem, either at a particular moment or over a period of time. In addition, there always is the unanswered question of the representativeness of the data.

The specific details of a cancer reporting system must be adapted to the special needs of each state. At the same time, the greatest benefits will be derived if comparable data are obtained so that the experience of one state can be compared with that of other states. In recognition of this fact, the U. S. Public Health Service and the American Cancer Society have jointly developed standard cancer report forms. The Maryland State Health Department in coöperation with the Public Health Service has initiated a demonstration local cancer control program which includes the use of these forms in morbidity reporting and the establishment of a cancer register. Statistical procedures are being developed to measure each aspect of the program with special attention to the role of public health nurses. Copies of the manual outlining the details of the reporting system and

of the other statistical procedures can be obtained upon request. The National Cancer Institute is adding persons to its staff to consult with states which wish assistance in establishing cancer morbidity reporting and cancer registers.

I have mentioned only a few of the uses of statistics in a cancer control program. I have said nothing of the role of statistics in epidemiological investigations, in the evaluation of diagnostic tests and similar activities. However, I hope that I have conveyed my belief that statistical activities, if thoughtfully planned and competently executed, form an integral part of a cancer control program.

Recent Nutrition Surveys in Newfoundland

A conference on recent nutrition surveys in Newfoundland was conducted under the auspices of the Nutrition Foundation, New York City, April 4. An international group of physicians from Canada, Great Britain, and the United States reviewed the part which improved diet can play in reducing infant mortality, lowering the tuberculosis death rate, increasing the alertness of children, and decreasing the symptoms that nutritionists attribute to dietary deficiencies. The findings of a 1948 resurvey of nutrition in Newfoundland were released, supplementing the initial survey made in August, 1944. The full report is published in the April issue of the *Canadian Medical Association Journal.*

Among the physicians participating were Dr. W. R. Aykroyd, of the F.A.O., United Nations; Dr. Norman Jolliffe, Department of Health, New York City; Dr. O. H. Lowry, Professor of Pharmacology, Washington University, St. Louis, Mo.; Dr. Percy E. Moore, Department of National Health and Welfare, Canada; Dr. W. H. Sebrell, National Institutes of Health, Bethesda; Dr. R. E. Shank, Professor of Preventive Medicine, Washington University, St. Louis, Mo.; Dr. F. F. Tisdall, Pediatrician, University of Toronto; Dr. R. M. Wilder, Professor of Medicine, Mayo Foundation, Rochester, Minn.; Dr. P. C. Zamecnik, Harvard Medical School, Boston; and Dr. Charles G. King, Director, Nutrition Foundation, New York.

According to the Nutrition Foundation, the survey of 1944 revealed that malnutrition due to the lack of thiamine, riboflavin, niacin, vitamin A, and ascorbic acid was common. These deficiencies were found in association with extensive dental caries, poor muscular development and infant mortality and tuberculosis rates from two to three times as high as those encountered in populations of similar ancestry in more favored regions. Steps were taken to improve the situation, including the enrichment of flour with thiamine, riboflavin, niacin and iron and, after January, 1947, with calcium, as well as the fortification of margarine with vitamin A. Increased emphasis was placed on education in nutrition, together with limited distribution of dry milk and cod liver oil and concentrated orange juice. Of the 868 persons examined in 1944, 227 individuals were reëxamined four years later.

The infant mortality rate in the City of St. Johns dropped from the 1940–1944 average of 102 to the 1947 rate of 61. The death rate from pulmonary tuberculosis dropped from a five year average of 135 to 101 in 1946. The death rate from all causes ranged during the five year preceding period from 11.4 to 12.5, dropping to 10.4 in 1945 and 10.5 in 1946.

Chronic Disease

Diabetes Control in a Local Health Department *

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WHAT is diabetes control? Before the discovery of insulin, the average life expectancy of a child with diabetes was about 2 years. A diabetic adult lived for an average of about 8 years. It was difficult to manage diabetes in the individual clinically, and starvation diets provided the major control measures. Public health procedures could not be adapted to the diabetes problem.

Significant changes have occurred in comparatively recent years. With advances in insulin and diet therapy, the juvenile diabetic can now look forward to an ever-increasing life span. Today, the adult, who acquires diabetes which is diagnosed early, and who is given the best treatment provided by our present medical knowledge, may expect to have a longevity which approaches and in some instances surpasses that of the average American citizen of his age. Early detection improves the clinical prognosis and offers encouragement for the prevention of complications. Prompt and aggressive therapy by a competent physician usually presages a successful treatment regimen and a happy life. The proper psychological presentation of the treatment pattern encourages the individual and helps to give good mental adjustment to the required changes in habits. This, together with painstaking education of the diabetic individual in practical methods of self management, promotes both his mental and physical well-being.

Preventive measures in diabetes which may be put to practical use by the public are now available. These are provided by our knowledge of the common factor of hereditary susceptibility in diabetes, by the high incidence of obesity usually found as a forerunner of the disease, and by the frequency with which acute infection or exacerbation of chronic infection "lights up" the pathological process. Therefore, while we do not know the exact causative agent or the specific host factor responsible for diabetes, we do know enough about its course and conditional factors to define and delimit diabetes control. Early detection, prompt referral to a physician for competent treatment, and thorough education of the diabetic patient and his family constitute important components of diabetes control in the individual and in the community. To these control factors must be added the problems of employment adjustment and the provision of adequate clinical and hospital facilities for the diabetic population.

Interpret the death rates from dia-

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betes as you wish, but as public health workers we should concern ourselves more with the current problems of the living diabetics. Living diabetics are increasing in number. Various experts have estimated that there are one million known diabetics in the United States, and recent large-scale laboratory studies of population groups in several communities have been used as bases for estimates that the number of unknown cases represents a comparable figure. People with diabetes are living longer, and with longer life have come premature arteriosclerotic complications particularly in those cases poorly controlled, where invalidism often results. In many and probably most of such complicated cases the disease was not recognized and treated until gross symptoms were evident. The disease thus takes a definite place in the health picture of any community and should, therefore, be of interest to the local health authority.

Diabetes has several definite characteristics which set it apart from the other members of the chronic disease group. Its treatment is carried out almost entirely by the individual patient under the supervision of his physician. There is no permanent remedy, but with good treatment the patient survives for a normal span of life. People with properly treated diabetes have been outstanding in sports, and in professional and political life; however, if diabetes is improperly controlled, it will cause hospital beds to be filled and will use up badly needed nursing services. The efficiency and productivity of the average diabetic patient is excellent when his disease is under control. However, he can easily become a drain on society when he is improperly treated and when his disease is poorly managed.

The present state of medical knowledge is such as to permit an active community program in diabetes control. There are relatively inexpensive and simple laboratory procedures available to aid in the detection and diagnosis of diabetes. As far as is known, there occurs in all cases of diabetes mellitus an increase in the amount of blood sugar, and in nearly all cases an excretion of sugar in the urine. Since 1922, there has been a corrective treatment available, in the form of insulin, which can restore patients from diabetic coma and impending death to a condition approximating complete health.

How can public health workers contribute to the health of a community through a diabetes control program? First, there is every indication that there are many undetected cases of diabetes in most population groups. In the survey conducted by the Public Health Service in Oxford, Mass., in 1946, almost as many unknown cases of diabetes were found as there were known cases. Every internist has experienced the situation where persons were first informed that they had diabetes when they were aroused from a diabetic coma. In one large medical institution, the disease of one of every six diabetics who are seen is discovered in a general examination, which is usually given for some other condition. A large percentage of the cases of diabetes found as a result of life insurance examinations show no history of the usual symptoms of diabetes.

Second, the personal aspect of the treatment of diabetes necessitates careful patient education in the basic principles of diabetes therapy. These two points suggest some of the opportunities which public health workers have to assist the practising medical profession in diabetes control. Since professional public health workers are schooled in diagnostic screening procedures and in health education, the application of these two skills, in close coöperation with organized medicine, will improve the diabetes control situation in almost any community. The Diabetes Section of the Public Health Service has been

in existence for two years. During this time diabetes prevalence studies have been made. Diabetes Demonstration Units have been established and have functioned as part of the local health departments in Jacksonville, Fla., and in Brookline, Mass. These units have been engaged in developing and demonstrating various ways of applying public health methods in diabetes control.

The unit in Jacksonville was established upon the invitation of the Duval County Medical Society. Personnel specially trained in diabetes mellitus were furnished as an intact unit by the Public Health Service. Valuable contributions to the program were made by the state and local health departments and necessary groups. The local medical society through its Diabetes Advisory Committee, has given support and guidance to the program. The Public Health Service personnel assigned to the Jacksonville demonstration unit includes 1 public health physician, 1 public health nurse, 1 nutritionist, 2 laboratory technicians and a secretary. A Medical Advisory Committee, composed of local physicians and public health workers, has reviewed all phases of the program with the director of the unit, has given advice on new projects, and has acted as liaison with the medical profession. This advisory committee includes two prominent internists, one of whom is director of the Diabetes Clinic at the County Hospital; the state, county, and city health officers; and a representative from the local Negro medical society.

At the start of the program in Jacksonville a register of known diabetics was set up. Diabetes reporting was not required, but it was invited, with an offer of valuable service in return. Names of diabetic patients were furnished by medical practitioners in the county hospital clinic and by other sources, including the Visiting Nurses' Association and patients themselves. Physicians have continued to send in the names of new patients, and periodic requests are made of all physicians to furnish names of new patients so that the register may be kept up-to-date. This register has proved useful, and is expected to furnish valuable information. At present, it contains a total of 845 names.

The diabetes control program in Brookline is conducted by the local health department with assistance from the Diabetes Section of the Public Health Service. Real efforts have been exerted to make this a true community project. The sponsorship of the program, most of the policy decisions, and a significant amount of the community work are provided by a lay advisory committee and a Medical Advisory Committee. The lay committee—The Diabetes Control Committee of Brookline—is composed of 26 local residents, interested and active in civic and community affairs. The Medical Advisory Committee has a membership of 13 Brookline physicians, who serve because of their special interest in diabetes and in community activities.

The Brookline experience indicates that one effective method of stimulating interest in diabetes is to make it convenient for people to take advantage of testing services. Temporary testing facilities are set up in various sections of the town. These temporary screening clinics usually operate in each section for a week or more, and move about the town. In addition to the neighborhood or sectional temporary screening stations, regular diabetes testing and diagnostic clinics are held in the health department building both afternoons and evenings. Persons of all ages are admitted to any of these clinics, preferably 1 to 2 hours after a full meal. At the first visit a urine sugar test and a capillary blood sugar test are given. If the values found as a result of these tests are within normal limits. the patient is informed that there is no labora-

tory evidence of abnormal findings at that time, and his physician is notified of the actual values. If the values are higher than normal the patient is contacted by letter or telephone and given another definite appointment for a recheck. His diet should be relatively high in carbohydrates at each meal for at least 3 days prior to the reëxamination. He is instructed to eat a meal containing approximately 100 gm. of carbohydrates 1 hour before his appointment, and is given specific instructions about this meal. At the second visit, another urine sugar test is made, and both capillary and venous blood are analyzed. If further study is indicated, the patient is then given an appointment for a glucose tolerance test. In the demonstration units no definite diagnosis of diabetes is given to the patient. He may be told that he has higher sugar values than normal, but he is not informed that he has diabetes. The patient is always referred to his own physician for diagnosis and this physician is always notified of the results of all the laboratory work.

In Brookline, to date, 3,720 people have been tested and 71 cases of previously unknown diabetes detected. This is not, of course, a random sample. But there has been no effort to select the group tested.

In November, 1947, when a mass chest x-ray survey was being conducted by the Brookline Health Department, diabetes testing facilities were set up, and handbills announcing the diabetes detection program were circulated among the group being x-rayed. Ten new cases of tuberculosis (or 0.16 per cent) were found among about 6,000 persons x-rayed. About 2,100 of these same people, or about one-third of those x-rayed, responded to the offer of diabetes tests at the same visit. Limited laboratory facilities prevented testing of additional people. Eighteen previously unknown diabetics (or 0.9 per cent) were detected in this smaller group. The diabetes discovery rate was more than five times as high as the tuberculosis discovery rate.

The methods used for screening population groups for diabetes have differed in some minor respects but essentially consist of post-prandial analyses of both blood and urine for sugar. The tests are preferably given to the subjects from 1 to 2 hours after they have eaten a full meal. Either capillary or venous blood sugar determinations are satisfactory. In Brookline, mostly capillary blood specimens have been collected, and in Jacksonville venous specimens have usually been obtained. If the tests show hyperglycemia or glycosuria, additional or recheck tests are made. These may consist either of a repetition of the same type of examination or performance of the standard glucose tolerance test. Those persons with confirmed abnormal laboratory findings are urged to see their family doctor. The laboratory results are sent to this doctor. The responsibility for interpretation of the laboratory results and for a diagnosis of diabetes rests with the patient's physician.

Different approaches to testing the population were developed in the two demonstration areas. In Jacksonville various population groups were contacted. One of the most successful projects was the testing of the blood relatives of diabetics. When a case of known diabetes is brought to the attention of the demonstration unit, with clearance from the attending physician, one of the public health nurses assigned to the unit itself or to one of the several coöperating agencies calls on the patient. A list of relatives living within the area is obtained. Relatives are then sent a form letter describing the high incidence of diabetes among relatives of known diabetics, and explaining how frequently the disease can occur without

detection. They are offered an opportunity to be tested, and an appointment is made for diabetes testing at the health department. The source diabetic is also informed of the time and place of his relative's appointment, and is urged to assist the health officer in the effort to get the relative tested. In a group of 753 relatives tested approximately 3.7 per cent of previously undetected diabetes has been found.

Education of the diabetic patient is a *sine qua non* of proper management. There is an opportunity for the local health department to coöperate with and assist the physician in the accomplishment of this objective. Recognizing that there is no objective of diabetes control more important than education of the patient, the Jacksonville unit organized with the coöperation of the medical advisory groups a public health class for diabetics. The demonstration unit furnished the instructors, the State Board of Health provided the materials, and the Duval County Hospital the classroom. The Medical Advisory Committee reviewed the plans and content of the educational program. The class was publicized through letters to local physicians and through notices in each of the four local newspapers. As a result, 125 persons attended the first session of the class. A total of 415 persons have already attended the series of six classes, each of which lasts 2 hours. About half of these people have been referred by private physicians.

The instruction is given by the unit physician, the public health nurse, and the nutritionist. The following topics are included in the total of 12 hours of classroom instruction.

Topics for Classroom Instruction

The nature of diabetes
Insulin—its source and action
Insulin reaction—its avoidance
Nutrition and diabetes
  Diet—Carbohydrates, Proteins, Fats
Complications—their prevention
  Infection, Sickness, Personal Hygiene
Sugar in blood and urine
  Urine testing methods
  Blood sugar analysis
Travel problem in diabetes
Selection and preparation of menus and lunches
Discussion period

The classes are conducted mainly by the discussion method, and participation by the patients is encouraged. Generous use is made of visual aids, such as moving pictures, charts and models (including food models). One class was given in a rural health center in the surrounding county area in order to bring this educational service directly to the consumer group.

An attempt was made in these classes to learn what the average diabetic patient knows about diabetes. A simple pre-test, based on the principles necessary for the adequate and accurate control of diabetes was given to diabetics attending their first lecture. The test was made as simple as possible, with only a "yes" or "no" answer required.

It is often quite difficult for the patient to acquire all the knowledge which he must have of the various techniques concerned with the treatment of diabetes. The patient must become adjusted and acquire wholesome psychological and philosophical attitudes toward his diabetic condition. In addition, he must learn several technical procedures which may be difficult if he does not possess the necessary background or orientation. The intricacies of diet substitution, of sterile techniques, and the injection of insulin seem to be particularly difficult for some age groups, particularly for children and for women past middle age. It is in the latter group, especially, that diabetes seems to be concentrated. Thus, follow-up is frequently found necessary after the initial course of instruction. The patient needs encouragement as well as a general review of his under-

standing and adherence to the diabetic regime.

In the Jacksonville unit, public health nurses and dietitians, under the direction of the physician in charge, take care of this follow-up when necessary, through home visits. The visits are made either at the request of the patient or his physician. In consultation with the Medical Advisory Committee a regular schedule of home visits is now being worked out. It is planned that every patient will be visited in his home, if possible, and will be encouraged to keep regular appointments for check-ups with his family doctor. This schedule will provide an opportunity for seeing the patient in his home environment and to study all the factors which affect his adherence to the treatment prescribed by his physician. The nurses, of course, can be of invaluable service in this phase of the control program. Almost without exception, the patients are deeply appreciative of this service and in the cases of invalids with diabetes, it is particularly valuable and always appreciated.

It is fortunate that a tolerance test is necessary on only a relatively few. It usually takes about 3 hours to complete the standard glucose tolerance test. During this time, however, the patient is actually busy with the doctor, nurse, or technician for little over ½ hour. The patient usually has nothing to do during the remainder of this period, except to wait for the next part of the test. Consequently, this interval has been used to good advantage by the health staff for giving instruction in causation factors in diabetes. This instruction includes a general discussion of the basic physiology involved in the glucose tolerance test and of the general aspects of diabetes. Since many of the persons waiting to be examined are overweight, an explanation of obesity and how it may be controlled is usually given. The discussions are then supplemented by films and pamphlets. We have found that the patients are particularly receptive when the tests are being performed, and we believe that, while the number reached in this manner may be small, a great deal of permanent value is accomplished.

A monthly news letter which goes to all known diabetic patients listed on the Jacksonville registry provides still another avenue for diabetes education. These one page bulletins, which are written in as simple language as possible for diabetic patients, are prepared and distributed in coöperation with the Medical Advisory Group and the local health agencies. They stress some of the important aspects of diabetes control and attempt to keep the patient informed of new advances in diabetic knowledge, new equipment, and timely advice on such matters as diet, avoidance of colds, foot infections, etc. The person with diabetes has a disease that will be with him the rest of his life and he needs constant encouragement, as well as the reiteration of the principles of adequate diabetes control, if he is to pay careful attention to a proper diabetic regime continuously for a period of many years. The repetition of some or all of the instruction classes, but particularly the regular distribution of this short and stimulating news letter goes far toward accomplishing this objective.

We have had the important coöperation of local pharmacists, in Jacksonville particularly, in offering aid and publicity for the various diabetes projects. The diabetic patient sees his pharmacist much more often than he sees his physician. He must purchase his insulin at approximately 2 to 4 week intervals. He needs other diabetic supplies, such as needles, syringes, cotton, etc. The local pharmaceutical association in Jacksonville coöperated in a recent campaign to acquaint diabetics in the area with the diabetes control program.

One of the projects of the American Diabetes Association is the sponsoring of local diabetes associations, which are divided into lay and professional sections. Diabetics are encouraged to join the lay sections. The professional sections, on the other hand, have excellent opportunities to put emphasis on improvement in detection and treatment techniques. The personnel of demonstration units can and have been active in initiating and coöperating in the organization of local diabetes associations. Much interest is nearly always shown by both diabetics and professional people and it can be predicted that once such a local program is under way it will be highly successful.

The nutritionist or dietitian associated with the health department can give valuable assistance in a diabetes control program. In coöperation with local dietetic groups there can be brought about the standardization of diabetic diets for the local area.

As is true with any public health program, relations with the practising medical profession must be cordial and cooperative if the diabetes control program is to be ultimately successful. Every attempt has been made to foster such a spirit of unity and concord in local areas. Medical advisory committees have been organized and physicians are constantly advised and informed, through their medical societies, of the progress and major aspects of the program. As might be expected, at the start of a new program, the physicians and other health workers, official and voluntary, at first viewed the diabetes control program with a judicious but not uncritical eye. As the details of the program unfolded before the physicians in the demonstration areas, however, they have expressed their appreciation and coöperation.

Undoubtedly there remains more to be done in constructing plans of control of diabetes on a mass basis and in setting up comprehensive diabetes programs which will be suitable for all local health departments. However, it seems that several facts are established through the experience of the demonstration units—that diabetes is amenable to public health control measures, and that a basic pattern for a workable control program has begun to emerge. Progress in the detection and management of diabetes is a coöperative responsibility. With the active help and support of the practising physician of official and voluntary health organizations, of nurses, dietitians, and all other health workers, we can make important progress toward attaining the goal of better diabetes control in our community and in our nation.

SUMMARY

Diabetes control is a community as well as an individual health problem. Diabetes, one of the chronic diseases which have long been neglected, should have a place in a local health department program, and diabetes control should be integrated with other chronic disease control programs where such programs exist.

Active public health programs in diabetes in Jacksonville, Fla., and Brookline, Mass., are described as coöperative endeavors between the Diabetes Section of the Public Health Service and local health departments. The objectives of the diabetes control program are primarily case finding (early detection), referral to practising physicians for treatment, and education of the public in general, and of the diabetic patient in particular. The procedures used in screening for diabetes and in the various phases of the diabetes educational program are described. Of particular significance are the diabetes discovery rates in the demonstration control programs, especially among the relatives of known cases of diabetes mellitus.

A Health Officer Survey of a Medical Care Program*

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THE health officers of the 23 counties of Maryland were challenged more than three years ago to put into effect an extensive and quite novel addition to the plans and activities of their several health departments, a program of medical care for the indigent and medically indigent. They had followed with keen interest the origins of the movement and the studies and exhaustive discussions of those who were designated to find a practical solution to the difficult problem. The underlying philosophy of the plan finally adopted was by no means unfamiliar to the health officers, for in 1944 the Committee on Medical Care of the State Planning Commission had made a report of its three year study to the Medical and Chirurgical Faculty of Maryland.[1] On the contrary, interest rode high and the physicians in charge of the local health departments of the state were thus enthusiastically ready to go when the legislature in 1945 provided for the actual inauguration and conduct of a medical care program by the state and local health departments.[2] It is, therefore, not surprising that the health officers of Maryland counties have enjoyed planning and putting into effect their own local medical care programs and that their efforts have resulted in the attainment of a very considerable degree of success. Our health officers agree that improvement both in medical care and in the usual preventive services has resulted from the joint efforts of the staffs of the local health departments and of the central Bureau of Medical Services of the State Health Department whose specific function it is to carry out the provisions of the medical care law.

In the counties of Maryland the medical care program is designed to reach persons receiving public assistance and those not on relief but who are unable to pay for needed medical care. Those individuals on public assistance, referred to as the "indigent," total about 17,000. They are certified periodically to the county health department by the county welfare department and are automatically supplied with identification cards establishing their eligibility for a 6 month period. Persons not on relief but not able to pay for needed medical care may make application for services to the county health department. If their income is within the limitations established by the program they are certified for eligibility for curative services for a specific period of time. In this certification the health officer has broad discretionary authority with regard to evaluating social, medical, and economic factors of the individual or family. Although the scope of medical care services varies from county to county, home and office care by physicians, prescribed drugs and acute dental care are provided in all counties. There is provision in the majority of the

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counties for hospital calls, acute and elective surgery, maternity care, consultations, and diagnostic laboratory services. Of the 23 counties, 15 provide elective dental care including dentures. In all counties full use is made of the existing clinical programs of the health department such as the prenatal, child hygiene, venereal disease, and tuberculosis clinics.

The physicians, judging from their actions and expressed opinions at state and county medical societies have supported the medical care program from the beginning. Their active interest has continued. Physicians are represented on the Committee on Medical Care of the State Planning Commission, and on the State Council on Medical Care which guides the Board of Health, and on each of the county advisory committees. The majority of physicians are taking an active part in the program, and the same is true of the dentists and pharmacists. Payment is on the fee-for-service principle following a uniform fee schedule recommended by the Council on Medical Care. The individual private physician submits at the end of each month a simplified medical report for each patient under the program, whom he has treated during the month. This report is first reviewed and approved by the county health officer and then sent to the state office from which payment is issued. Of the approximately 25,000 persons in the counties who are in possession of certificates of eligibility, about 5,000 receive physicians' services each month. From the beginning of the program 957 physicians have participated. A substantial number of these physicians have their offices in Baltimore City, not in any county, and a few are out of the state. There are 693 physicians in the counties, and of these 592, or 87 per cent, have participated in the medical care program. Each month between 450 and 500 physicians participate in the program.

Although no attempt has been made formally to determine, in their own words, what the recipients think of the program and its services, the county health officers receive daily the opinions of many patients receiving care. Almost universally there is satisfaction on the part of recipients and gratitude for the office and home medical services given them by the nearby physicians and dentists of their own choice. The health officer is pleased to note the general response to the medical care program, both by those who give and by those who receive curative services. Before the program began health officers were embarrassed by having many persons apply to them for medical care, and in most cases they were unable to render any assistance. When such persons were, of necessity, referred to a private physician, the health officer felt that the service rendered by the physician to the patient was regarded as a personal favor to the health officer.

Fuller accounts of the basic concepts, the beginnings and the progress of a state-health-department-sponsored medical care program as illustrated by the experiences in Maryland have already appeared.[3-5] A further description of the many novel administrative techniques which had to be developed in this program, many of them unique patterns for the future, a few almost completely without precedent, would not be appropriate at this present discussion. Rather, I prefer to speak about how the health officers of Maryland have attempted to solve some of the problems which arose when they were called on to develop a workable administrative machinery for integrating the varied services required for medical care, into the already existing system of preventive services. I shall point out a few representative situations and how we, as local health officers, have reacted to them.

As a background of the actions and

reactions of the health officers of Maryland to the medical care program, it is necessary to point out that in Maryland the delegation of administrative responsibility for the operation of the plan was made possible by the complete system of county health departments which has been in operation in the state during the last two decades. Each of the 23 counties has a health department, with at least a minimum staff, consisting of a physician who is the health officer, two or more public health nurses, and clerical personnel, all serving on a full-time basis. In the larger counties this minimum staff is supplemented by assistant health officers, dentists, additional nurses and nursing supervisors, medical-social workers, sanitarians, and other auxiliary personnel. The administrative head of each county department serves both as county health officer and deputy state health officer. He is appointed by the county board of health, but his appointment must be approved by the State Board of Health. As county health officer, he is responsible to the county board of health, and as deputy state health officer, he is responsible to the State Director of Health. The administration of the local medical care program is entrusted to the health officer in his capacity as deputy state health officer. The health officer thus has the responsibility for developing an efficient curative program and, at the same time, an opportunity to strengthen and enlarge the already existing preventive services.

It was early apparent to each health officer, just before the medical care program was inaugurated in his department, that this new function needed to be publicized and interpreted promptly to as many people as possible in the community. This was done, first, by the usual methods of disseminating information: addresses to the medical association, letters to physicians, dentists, and pharmacists, news releases, conferences with heads of official and nonofficial agencies, and informal talks by the health officer with professional and lay people of his acquaintance in the community. This sudden increase in his contacts helped him immeasurably to publicize his existing preventive program, because he would not and did not want to explain and teach the services of one program without doing so for the other. The continuing interpretation of his entire program to the profession, to community agencies, and through them to the public, was facilitated by the development of a new and valuable administrative aid, the county advisory committee on medical care. This committee includes representatives of the medical, dental, and pharmaceutical professions, of the local board of health, welfare agencies, board of education, nursing and lay health organizations. If health officers were asked to name the single most useful and effective factor in the operation of the medical care program and its integration with the preventive program, the almost unanimous choice would be the county advisory committee, functioning with their imaginative leadership and intimately associated in its deliberations with the statewide advisory body of which the State Director of the Bureau of Medical Services acts as secretary.

The multiplication in the number of contacts between the health officer and the medical and dental professions resulting from the inauguration of the medical care program has been welcomed by the health officer who knows that more contacts mean increasing his services both preventive and curative to the professions and to the people. He has found that he should have a personal interview with every new physician who establishes a practice in the county, and in some counties he can periodically visit all the private physicians. He has learned that when a friendly coöperative relationship has been established with a

physician, a regular visit by one of his public health nurses, offering her help in his work with his own patients, is a valuable aid in enhancing good will for the health department.

Many health departments had already established master index files of all preventive services rendered to an individual, but with the establishment of the medical care program there has arisen the evident need of an index card file of all services, both curative and preventive, in each county. Some departments have started this all-service file for securing and exchanging information of services rendered or to be rendered, particularly by public health nurses. They will find the use of the file to be of value in improving the efficiency of their visits to individuals and families. In addition, the department file of summary sheets of medical care services specifically rendered an individual should be active, and the records carefully reviewed periodically by the health officer to secure information to be used, not only when he confers with physicians about particular cases, but also for transmittal to the public health nurses who may more intelligently deal with their patients.

The need has become more evident, since the beginning of the medical care program, for making preventive as well as curative services readily available to a segment of the population which has for the most part not previously been reached by the health department. Prenatal and infant and preschool hygiene clinics are being enlarged and expanded as well as school health services. Consultation clinics, often developed in the past around preventive programs in such fields as obstetrics, pediatrics, and orthopedics should now be expanded in new fields such as internal medicine, psychiatry, gynecology, and surgery. In some counties it will be feasible to combine several specialized clinics into a general diagnostic clinic. Patients of the medical care program can and should be encouraged to receive two of the most valuable aids to diagnosis already in the preventive program, an x-ray of the chest and chemical and microscopic examination of the urine at clinics already being conducted.

A bedside nursing service is certainly recognized as perhaps the means of choice in bringing both the curative and preventive services directly to the individual and family by the public health nurse who, in bedside work, goes over the doorstep and into the very sickroom of the patient. Of course, the paucity of public health nurses in anything approaching a practical ratio of nurse to population is the present barrier in making this type of nursing service an immediate part of the health department's program, particularly in the larger counties. However, three counties under the able sponsorship of the State Division of Public Health Nursing have inaugurated trial programs of bedside nursing and patterns for the future, and in other counties are being successfully developed.

There are, of course, other improvements to be made along the lines of coordinating the preventive and curative services of health departments. One of these is the extension and enlargement of dental services in the three large areas of endeavor: (1) preventive, (2) preventive-curative, and (3) restorative. Vigorous efforts should be made by health officers to effect as soon as possible a closer day-by-day working relationship between the department's curative services and the individual practitioner of dentistry. It is expected shortly to arrive at specific recommendations as to ways of improving distribution of dental health information to private dentists when a contemplated special committee of health officers for public health education standards is activated.

Experience in the medical care pro-

gram has shown the health officer that laboratory service needs to be enlarged, as is necessary in order to meet the growing demands placed upon it by patients actually treated clinically in the medical care program. Already the staffs of the 11 branch laboratories of the State Department of Health have been enlarged in order that they may perform clinical laboratory tests for medical care patients. Most of these laboratories are now able to offer to the physician the usual hematologic examinations, blood chemistry, urinalysis, serologic tests, and bacteriologic examinations. In addition to these expansions, steps should be taken to inform continuingly all the private physicians of the county concerning the exact nature of laboratory services which are currently available. Health officers believe that leaflets should be prepared and issued by the State Bureau of Bacteriology to private physicians and county health departments relating the clinical features of the more common diseases with the types of tests which can be made and the character, value, interpretations, and limitations of the various tests.

In May, 1947, a little more than two years after medical care became a reality in Maryland the Director of Health appointed a committee of four health officers and two representatives of the central office to study and make recommendations concerning the ways and means for establishing policies to promote closer coördination between the preventive and curative services. Before making its report [6] the committee shared its findings with the health officers of all the counties. The interchange of experiences at this meeting was acclaimed by the health officers as a factor of first importance in indicating the practical steps to be taken in each county toward unifying the preventive and curative services.

The health officers of Maryland believe that their efforts to establish and operate the local medical care program and to coördinate the preventive and curative services have been attended by measurable and demonstrable success. The individual health officer has shown an eagerness to carry on the medical care program because he sees in it an opportunity for enlarging what he considers to be his own and his staff's usefulness in the public health field. He has looked upon the inauguration and operation of his medical care program as a forthright challenge of his talents and abilities to devise and carry out an intricate series of administrative procedures. More than any other health department function in recent years, the medical care program has given an opportunity, long sought by many health officers, for expanding his public health and civic leadership. He has been fortunate in having the guidance and service of an alert State Bureau of Medical Services, closely and actively associated with him in the work of formulating and carrying out county as well as statewide medical care policies. It is this working together of the health officer and his Bureau of Medical Services and his own advisory groups that has made medical care an exciting and satisfying administrative experience to the health officers in the counties of Maryland.

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Nutrition Course for Students of Public Health*

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NUTRITION represents one of the relatively newer activities in public health work. This is due in part to problems arising out of the recent war and in part to a natural maturation of the field of public health. These two processes have brought about an increased awareness and demand on the part of the public, accompanied by an increased interest on the part of some of the various members of the public health profession in problems and programs relating to public health nutrition.

The fulfillment of these demands and interests has been hampered by four outstanding factors: (a) the inadequate numbers of all types of public health personnel, among whom are now included nutritionists; (b) some uncertainty concerning the modus operandi of a satisfactory program of public health nutrition; (c) misunderstanding concerning those persons in the public health family who should be charged with responsibility for work in the field of public health nutrition; and (d) the relative lack of a satisfactory, time-proven pattern for the teaching of public health nutrition. The primary purpose of this paper is to discuss the last of these four factors. It is obviously impossible to do so, however, without first giving some consideration to the other three.

The report *Local Health Units for the Nation* has brought into the national consciousness the discrepancies between existing and needed personnel in all branches of public health service. While public health nutritionists are not specifically considered in that report, its conclusions apply to that professional group, perhaps all the more so, because of the relative newness of applied promotive nutritional work in the public health program. Considerable variation exists in terms of the numbers of workers employed by health agencies specifically for work in nutrition. Data presented at the nutrition section of the National Health Assembly in May, 1948, indicated a total of 203 positions in public health nutrition in the 51 state and territorial health agencies. Of these, 35 were unfilled. At the present time (August, 1948) 7 of the state health agencies have no nutritionists in their employ, in 3 instances because no position exists and in 4 instances because of vacancies. The number of positions for nutritionists in state health agencies ranges from none in the 3 instances referred to above (Nevada, South Dakota, and Wyoming) to a maximum of ten in each of 2 states, the mode being about 2 positions.

One cannot help receiving the unfortunate impression that at the present time considerable misunderstanding and confusion exists with regard to the desired content and purposes of a program

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in public health nutrition. Many public health workers look upon nutrition as a highly specialized field, success in which depends entirely upon the efforts of a few specially trained and interested physicians and nutritionists. One reason for this is that, all too often, nutrition programs are considered to be synonymous with diet therapy or with group feeding. Another possible reason is the considerable interest in, and possible over-emphasis on, the many nutrition surveys that have been conducted during the past 10 or 15 years. Studies such as these, while valuable in terms of determining base lines and research technics, are sometimes misinterpreted as representing the epitome of a complete satisfactory public health nutrition program. It should be remembered that but little control of tuberculosis would be accomplished if tuberculosis programs consisted merely of the development of diagnostic methods and the determination of the general level of infection in selected groups of the population. These activities simply constitute a starting point for the achievement of the ultimate goal of control.

Many other factors lead to a lack of interest on the part of many public health workers. There is a widespread tendency to consider nutrition only in a negative sense rather than from a preventive and promotive viewpoint. A failure to appreciate the extent and seriousness of the total problem has led some to regard any nutrition program as somewhat of a frill, to be engaged in when funds, particularly outside funds, are plentiful, and quickly dropped when they become scarce. Still others consider nutritional problems to be so intangible as to make it impossible to weave a practical, fruitful approach into the fabric of the total public health program.

It is appropriate, therefore, to inquire into the manner in which health agencies might concern themselves with nutrition. The public health approach must of necessity differ from other approaches to the subject. The agronomist is primarily concerned with the production of foodstuffs, the home economist with the proper preparation of foods, the biochemist with the minutiae of food assessment and the analysis of materials from the body which may reflect adequacy or inadequacy of intake and use of the component parts of the diet, and the clinician with the physical signs and symptoms of nutritional adequacy or deficiency. The public health worker, on the other hand, cannot restrict his interest and concern to any one or several of these. His approach to nutrition, as in the case of any other problem with which he is confronted, must be of a practical down-to-earth nature, viewing the people as an ultimate whole rather than as isolated individuals. The primary job at hand is to assist people in general in applying what scientific information is available at present in order that they may achieve a longer, healthier, more fruitful existence. To reach this goal requires a synthesis of many viewpoints: economic, sociological, clinical and educational, to mention but a few.

Fundamentally the program must take the form of continuous public education, assisting people in their efforts to meet their nutritional problems successfully. To accomplish this involves the breakdown, with the consent and coöperation of the public, of faulty traditional dietary habits, and the translation of scientific dietary analysis and planning into readily understood terms used commonly by the public. To alter ingrained habits and customs, especially those related to a function as personal as eating, is usually accomplished slowly and with great difficulty. To do so involves dealing with racial, regional, and familial customs; with prides, prejudices, superstitions and fears. The only successful approach is one which maneuvers com-

munity thought into the position of itself recognizing the needs and the remedies at hand.

To make a special, pointed attempt to accomplish these ends, all too often gives the impression that the health department is trying to sell the public a "bill of goods." One of the best ways of avoiding this unfortunate interpretation is to integrate applied nutrition into as many phases of the general public health program as is possible and the number of possibilities for doing this is surprisingly high. There are very few if any cases on the public health nurse's roster, for example, that do not need and cannot be given some simple but pertinent instruction in nutrition. Surely this is important in cases of acute communicable diseases, tuberculosis, and many non-communicable diseases such as diabetes and heart disease with which public health nurses are becoming increasingly concerned. Prenatal and well baby conferences offer particularly fruitful avenues of approach. The school health program provides an opportunity to show not only how the school lunch program may best be carried out, but also how sound nutrition information can be presented dramatically and effectively in the study of geography, economics, civics, and even arithmetic. Beyond this, with the general public in mind, the overall community health education program should give a fair share of attention to discussions, news releases, and radio talks on subjects relating to nutrition.

The medical personnel of the health department, in addition to having available all of the avenues of approach mentioned above, may work through another channel, the local members of the medical profession. In consultations, informal contacts, and talks given at medical society meetings, much might be done to increase the extent to which the private practitioners are nutrition conscious. The offering of nutrition consultation services to private physicians might be worth while in attempting to accomplish this end.

Most apt to be forgotten is the public health engineer or sanitarian, who, of all public health personnel, actually is most intimately concerned with food. It is he who visits the dairies, milk plants, restaurants, and food stores. If assisted to a wider horizon he may do much more than supervise the bacterial quality of food materials. His contacts with dairy farmers very often lead to discussions of various types of cattle feed and their effect on general health and function. To transfer conclusions to the human population is but a short step, although the taking of that step has already required the passage of several centuries.

With these few brief examples in mind we may answer perhaps more adequately the question—for whom should courses in public health nutrition be designed? If there is a shortage of nutrition specialists and of funds with which to employ them generally, and if all of the diverse professional types working in public health have a very real potential contribution to make in this area, then why not design the course in public health nutrition to meet the needs of the broader professional group.

It is obvious that the course should not be limited to a study of the biochemical constitution of foods, average daily requirements of essential food factors, and the consequences of an inadequate supply or use of them. Too often courses in nutrition for public health workers have stopped here. This is wholly inadequate. It is easily possible to possess a considerable mass of scientific facts and yet, for various reasons, be unable to apply them for the betterment of the people.

To begin with, it would seem worth while to devote some time to a consideration of the relationship between the nutritional condition of people and

their historical, economic, political, and cultural progress; in other words, food and the welfare of nations. Intimately interwoven with this, of necessity, is a consideration of the history of the science of nutrition and its application. The student should have a proper background and incentive for going on to study the biochemical, physiological and clinical aspects of the subject. In this regard it is strongly felt that a sound understanding of the physiologic reasons for essential nutrient factors, their natural sources, the methods of their use by the body, and the consequences of their inadequacy is of far more importance than committing to memory daily dietary requirements, the structural formulae of vitamins, and other similar numerical data which experience has shown to be changed from time to time and to have but limited practical application.

Bear in mind that we are confronted with the problem of providing students with a practical approach to assisting the family in the hills of Kentucky, on the plains of Nebraska, and the streets of New York in making the most of what they have readily available. It is well that the student learn to face squarely the environmental limitations of each person, each family, each community, and each nation with which they might deal. One of the most common recent American errors has been the attempt to force people and circumstances to fit artificial or scientific standards. The danger of falling into that attractive trap is particularly great in the field of nutrition where there exist so few obvious manifestations on which to base action.

A study of the many underlying reasons for dietary inadequacy, is, therefore, essential. Attention should be given to dietary customs, superstitions, fads and fallacies, and a study made of factors such as economics, climate, soil, and geography which may influence the food supply and nutrition of people. Special consideration should be given to phases of life which present unusual or unique nutritional demands or problems. Here, the periods of pregnancy, infancy, illness, and old age are worthy of particular note.

Finally, and serving as the focal point of all the foregoing, there should be provided ample time for discussion of the place that nutrition activities do and might occupy in the total general public health program. The organization and content of existing programs should be reviewed and suggestions for more effective programs elicited. The functions and use of state or regional nutrition specialists should be presented, placing particular stress upon their positions as educational expeditors, field consultants and inservice-trainers for the rest of the public health staff in the area. Specific attention should be given to school and industrial lunch programs as educational as well as feeding enterprises, which reach back into the home. Perhaps of greatest educational impact would be informal discussions of the potential contributions of each member of the class and of each professional group to the public health nutrition program. In attempting to do so, the case history approach may be used to considerable advantage.

The appeal of a course such as this is best indicated first by the types of students who elect to take it, and second by their response to the material presented, measured roughly in terms of sustained interest and participation. It has been interesting to observe the increasing attention which all types of public health students have been giving to the subject of nutrition. During the 3 academic years, 1945–1948, at the University of Michigan School of Public Health for example, the courses in public health nutrition have been elected by a total of 214 individuals, only 9 of whom were specialists in the field. The

heterogeneity of the remainder is worthy of mention. The course was taken by 153, or about 100 per cent of the public health nurses, 23 or about 50 per cent of the health educators, 19 or about 40 per cent of the health officers, 7 or about 20 per cent of the specialists in environmental health, 2 public health laboratory workers, and 1 statistician. In addition, and from other schools of the university, there were 102 or 100 per cent of the dental hygienists, 61 or about 95 per cent of the graduate dentists, 14 physical education students, 8 graduate students in education, and 2 students specializing in speech. A definite and significant impression has been received that each of these students completed the course with a feeling that there was something that he or she could contribute in an attempt to improve the nutrition of the public.

It is not considered desirable to attempt to make nutrition specialists out of these people. Rather, the intention is to provide each of them with a broad understanding of the relation of food to total health and social welfare. This, it is hoped, will serve not only as a framework upon which they may add new developments in the science of nutrition, but also as a basis for applying that knowledge to the solution of the feeding problems of human communities. The degree to which this is accomplished will influence the service of public health agencies to mankind.

Y.M.C.A. Local Health Units Resolution

The National Physical Education Committee of the Y.M.C.A. at its quarterly meeting in January adopted the following resolution submitted by the Committee on National Relationships:

Be it resolved that the National Physical Education Committee in its formal and informal relationships with area councils, state committees, and local Associations, use its good offices and official connections to encourage local Associations to participate actively in local community health councils or other organized bodies interested in promoting the general health of the community. Further, if no health council or similar organization exists in a community where the Y.M.C.A. is operating, that the Association initiate steps which would make for the formation of community health council.

And, the National Physical Education Committee recommends that all area councils and state Y.M.C.A. committees become acquainted with the work of state health councils and affiliate if desirable with such state health agencies so that Y.M.C.A.'s of the state or area may be benefited by being able to avail themselves of the resources of literature, exhibits, films, and personnel of the state health agencies, and likewise, give such help as they can as official representatives of the Y.M.C.A.'s of the state in furthering the general health.

And further, be it resolved that in so far as practicable, the Senior Secretary for Physical Education of the National Board, Y.M.C.A.'s, will advise and assist area and state Y.M.C.A. committees in organization efforts, in developing continuing program ideas and in providing such printed material as can be secured without cost from public and private health organizations,

And finally, be it resolved that the National Physical Education Committee encourage careful study and coöperate efforts by area and state Committees and local Associations in the development of effective "local health units" as currently proposed by the National Health Council and its National Advisory Committee on *Local Health Units*; such units to make possible a higher level and more even provision of health education and health services throughout the country.

Training Physicians in Public Health Nutrition*†

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TRAINING physicians for work in the field of public health nutrition is a problem of current importance because, of all the environmental factors affecting health in present-day civilization in this country, none is more important than nutrition. The first half of this century has witnessed a great improvement in public health, due largely to the control of infectious disease. Tuberculosis, pneumonia, and dysentery, which were the leading causes of death in 1900, are no longer major public health problems. We know how to control these diseases; all that remains is a "mopping up procedure." It would seem that the professional health school which concentrates on sanitation and the control of communicable disease is simply resting on the laurels of the past. The health problems which confront us in the last half of the 20th century are the degenerative diseases, particularly cardiovascular-renal disease and cancer. Advances in this area will be aided by increased knowledge of cellular nutrition. A less clearly defined problem, but nevertheless an important one, is the overall improvement of well-being as evidenced by healthier children and a more productive life for adults. This problem includes the preventive aspects of illness, both physical and mental, and better nutrition will play an important part in its solution. Too many of the current leaders in medicine and public health still think that three meals a day which satisfy the appetite will provide adequate nutrition. Nothing could be farther from the truth.

Nutrition, or the science of food and its relation to health, is a comparatively new field. The daily diet with the economic problems relating to obtaining it, is an old and familiar one. The investigator in the laboratory with his knowledge of how to better nutrition, and the health worker with his knowledge of human needs have been far apart. If the information obtained by the investigator is to be applied by the health worker, this distance must be bridged. The investigator is primarily responsible for getting information, the health worker primarily for interpreting it. The distance between them can be decreased by bringing the results of investigation to the health worker by means of a thorough professional training.

It should be emphasized that there is a severe shortage of professional workers with special training in foods and nutrition. Few physicians, health officers, dentists, medical or health administra-

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† This paper includes material from a report (Sept., 1946) of a committee appointed by the Dean of the Harvard Medical School to make recommendations on the teaching of nutrition to medical students and from a report (May, 1948) of a committee of the Nutrition Section of the National Health Assembly appointed for the purpose of making recommendations concerning the teaching of nutrition to medical, dental, and health personnel. The author was chairman of these two committees.

tors, nurses, or social workers have received much training in this field. This situation indicates the need for an evaluation of the academic requirements for personnel specialized in nutrition and of the important economic and social problems of salaries, working conditions, and professional prestige.

SPECIFIC TRAINING PROPOSALS

There is one general condition that applies in varying degree to all categories of professional workers, namely an adequate basic training. Nutrition, as a science, is a development largely of biochemisty which in turn is an outgrowth of chemistry and physiology. Therefore, all the professional workers in the field of nutrition should have some acquaintance with general chemistry, physiology, and biochemistry, the amount depending on what the professional worker is to do. Obviously, the investigator in the nutrition laboratory needs far more preparation in basic science than does the practising or public health physician, but a good principle is that no one will make a serious mistake by emphasizing training in the basic sciences. The facts of human nutrition have come mainly from two sources, the laboratory experiment and observations of the food practices and nutritional condition of individuals and of peoples. Since nutrition is an experimental science, it is important that professional workers should have an appreciation of the experimental method acquired through experience in the laboratory. On the other hand, there are aspects of nutrition which are treated by the social sciences and the physician who does not understand this interrelation will remain permanently handicapped in his effort to adjust food practices to nutritional needs.

Any discussion of training physicians for work in public health nutrition should really begin with a brief discussion of training physicians in nutrition. The following recommendations are general and should be modified according to individual circumstances.

Medical Undergraduates—

In medicine, as in public health, the applications of nutrition are so broad that training can be had best along two main lines: first, incorporating nutrition in many of the courses standard in present curricula; and second, adding special courses for those students who are particularly interested in nutrition, or some aspect of nutrition as a specialty. Integration of nutrition teaching in a professional school can be accomplished only if some individual, or a special committee, is made responsible for planning and implementing this teaching program.

Nutrition should be an essential component of the standard medical curriculum, but in general should be incorporated into standard courses. The following outline suggests how various aspects of nutrition can be fitted into the medical curriculum:

COURSES OF THE FIRST AND SECOND YEARS

Anatomy—The effects of exogenous and environmental stimuli, many of which are nutrients, on cell structure, growth, and function should be discussed.

Biochemistry—

A. General lectures in biochemistry dealing with protein, fat, carbohydrate, minerals, and water balance

B. Specific lectures dealing with nutrition as follows:

1. Historical—Present Concept of Nutrition
2. Vitamins A and D
3. Thiamine, Riboflavin, and Niacin
4. Folic Acid, Choline, and Ascorbic Acid
5. Other Vitamins and Growth Factors
6. Trace Minerals in Nutrition
7. Nutrition in Medicine

C. Laboratory work in experimental nutrition

Physiology—The physiology of digestion and metabolism should be thoroughly covered, with special attention to nutritional factors.

Bacteriology—Lectures covering the material suggested by the following titles:

1. Bacterial Nutrition
2. Bacterial Nutrition and Its Relation to Chemotherapy and to the Study of Nutritional Problems in Man

Pathology—The pathology of nutritional deficiencies should be thoroughly covered.

Physical Diagnosis or Second-Year Medicine—Periods covering material included in the following titles:

1. Symptoms and Signs that May Be Associated with Inadequate Nutrition
2. The Classical Nutritional Deficiencies

Laboratory Diagnosis—Laboratory methods in the diagnosis of nutritional deficiencies should be discussed.

Second-Year Pediatrics—Courses dealing with growth, development, and maturation should include the following:

1. Nutrition and the Physiology of the Newborn
2. Nutrition and the Progress of Growth
3. Nutrition and the Significance of Retarded Growth
4. Nutritional Requirements of Infants and Children and How These Requirements are Met by Food.

COURSES OF THE THIRD AND FOURTH YEARS

Third-Year Lectures in Medicine or Surgery—

1. Evaluation of Nutritional Status
2. Nutritional Problems in General Medicine
3. Conditioned Nutritional Deficiencies
4. Obesity and Malnutrition
5. Calcium and Phosphorous Metabolism
6. Nutrition in Convalescence
7. The Use and Abuse of Commercial Vitamin, Mineral, and Protein Preparations
8. Supplementary Feedings—Oral, Tube, and Parenteral

Third-Year Lectures in Pediatrics—Courses dealing with principles of infant and child feeding should include considerations of:

1. Acute and Chronic Deficiencies, e.g., Rickets, Scurvey, Tetany, Anemias, etc.
2. Interrelationships between Nutritional Deficiencies and Infectious Diseases in Failure of Growth and Development

Third-Year Lectures in Obstetrics: Lectures covering the material suggested by the following titles should be given:

1. Nutritional Requirements in Pregnancy and Lactation and the Importance of Breast Feeding
2. Nutrition and Its Relation to Complications of Pregnancy and the Health of the New-born

Third-Year Lectures in Preventive Medicine—Lectures covering the material suggested by the following titles:

1. Nutrition and Improved Health
2. Nutritional Studies of Population Groups
3. Nutrition and World Economics

APPLIED NUTRITION (DIETETICS)

As part of the outpatient or ward service in medicine, surgery, obstetrics, and pediatrics, sufficient time should be made available for each student to become thoroughly familiar with the principles of applied nutrition. Each student should be able to write dietary prescriptions which will provide for adequate nutrition, and to interpret them in terms of food. This can be taught best by a competent therapeutic dietitian working with groups of 6 to 8 students, and would require a minimum of three 2 hour periods. It makes no difference whether this is taught on the medical or surgical service. Applied nutrition in obstetrics and pediatrics should each be considered separately and would each require two 2 hour periods providing the students have already had the basic instruction in applied nutrition recommended for medicine and surgery, and if this is not the case, a third 2 hour period would be needed.

"Nutrition Rounds"—Once a week a member of the clinical staff in medicine, surgery, pediatrics, and obstetrics may see with the students on the service, patients who present unusual or common nutritional problems. The therapeutic dietitian should accompany the group on rounds and participate in the discussions.

The weekly clinical-pathologic conference and the weekly grand rounds held by most hospitals are valuable teaching aids. Discussions on various aspects of nutrition should be organized on appropriate occasions.

Socio-economic Factors in Nutrition—In any discussion of applied nutrition, the medical student, as well as other professional health personnel, must consider the socio-economic factors of obtaining the food necessary for any recommended diet. How does the patient get the money (or the food) for diets that are prescribed? The participation of the medical-social worker in case conferences will help both students and doctors to recognize and solve these important problems.

Physicians in Public Health Work—Some health personnel have the opportunity to attend a school of public health. This is a highly desirable procedure. Health personnel who do not attend a graduate school for training in public health must rely on undergraduate training as already mentioned, and on their own initiative to keep up to date with advances in nutrition that apply to public health.

Every health officer who holds, or hopes to hold an important administrative post in public health, and who attends a graduate school of public health, should have a course under a title such as "Public Health Nutrition." The same or a similar course is needed in the training of public health nurses and health educators. Such a course should consider the following subjects. These can be adequately covered in a series of twenty-four 1 hour lectures.

1. A brief review of fundamental principles of nutrition
2. Application of the science of nutrition to human nutrition
   a. Dietary requirements of growth, pregnancy, lactation, and adulthood and how they can be met by foods
   b. Diet in relation to dental structures
   c. Diet in the treatment of disease
3. Establishment of minimum and optional nutritional allowances
   a. Fulfilling allowances in terms of foods, especially with reference to low income levels
4. Methods for evaluating nutritional status
   a. Biochemical and physical examinations
   b. Nutritional histories; food intake studies
   c. Surveys of population groups
5. Nutritional deficiency diseases
6. Factors affecting food values: processing, cooking; enrichment and fortification
7. Factors affecting food habits: cultural, economic, psychological
8. Nutrition services as part of the public health program: national, state, community
   a. Organization and fields to be covered
      (1) The place of the nutritionist
      (2) Coördination of program with other community services and organizations
      (3) The school lunch; industrial feeding
9. Nutrition and world health
   a. Problems of the production and distribution of food
   b. Relief, rehabilitation famine, and other emergencies

In a school of public health the administrative and epidemiological aspects of public health nutrition might best be taught conjointly with the departments of administration and epidemiology. The important thing is to see that these approaches are not omitted.

Health officers who are interested in securing more information on nutrition than already suggested should participate in seminars, discussion groups, and journal clubs. Suggested topics for special seminars are the following:

1. The administrative organization of nutrition in the health department
2. Nutrition services in the health department
3. Recent nutrition research and its importance to public health problems
4. Social and cultural patterns and their importance in public health nutrition
5. International nutrition and the problem of food supplies and population trends.

SUMMARY

Nutrition is such a broad and important subject in health that all health personnel should have some awareness of the subject. This applies particularly to the physician in public health work. Professional training in nutrition is important and, depending upon

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SUMMARY

Nutrition is such a broad and important subject in health that all health personnel should have some awareness of the subject. This applies particularly to the physician in public health work. Professional training in nutrition is important and, depending upon

the profession, should include some or all of the following:

1. Basic and historical information on the science of nutrition, in perspective to the other sciences
2. Applications of nutrition to medical and health problems
3. An account of recent research in nutrition as it applies to public health with some evaluation of present and future problems
4. The economic, social, and psychologic aspects of nutrition

Professional training in nutrition should be given by each of the following general procedures:

1. Instruction in nutrition should be given in each of the years of professional schooling.
2. Most of this instruction should be incorporated in standard courses of the curriculum.
3. Special courses in public health nutrition should be given in schools of public health.

CONCLUSION

In conclusion, may I repeat the opening sentence of this paper—"Training physicians for work in the field of public health nutrition is a problem of current importance, because of all the environmental factors affecting health in present-day civilization in this country, none is more important than nutrition."

Foreign Teaching Opportunities Under U. S. Fulbright Act

The U. S. Department of State has announced an opening under the Fulbright program for a visiting professor in public health at the Medical College, University of Rangoon, Burma, for one academic year beginning in June, 1949. According to the announcement, persons interested in the opening should have had extensive experience in public health activities in rural and warm-climate areas, should have an M.D. degree, and should possess the personal qualifications necessary for advising on large scale problems. The award will be made in Burmese currency and includes stipend, a maintenance allowance, round-trip transportation, and an allowance for books or equipment necessary to the teaching assignment. Requests for further information should be addressed to the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Avenue, Washington 25, D. C.

The Fulbright Act (Public Law No. 584, 79th Congress, Second Session) authorizes the U. S. Secretary of State to set aside a portion of the foreign currencies resulting from the sale of surplus property abroad for educational exchange programs with certain foreign governments. It is understood that the Fulbright program is still in its initial stages and that policy decisions are in the process of formulation. Stipends, however, are expected to bear a reasonable relation to the grantee's salary and in addition, allowances may be provided for housing and cost of living. Transportation for grantees from and to the United States may be provided in addition to the total award when the foreign currency is acceptable to the carriers. Transportation inside the United States will not be provided.

Public Health Engineering in Foreign Areas with American Industry*

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THE revolutionary changes in the peacetime foreign policy of the United States that have taken place during the past 3 years are apparent to all. Military and temporary economic rehabilitation aspects however have tended to distract attention from long-range economic factors, including the expanding role of American production in foreign areas. This expansion results from two fundamental conditions.

The first might be termed the strategic materials situation. One phase of this is the ever growing list of materials, especially minerals, which are vital both to our increasingly complex industrial civilization and to national defense. In terms of national defense alone, at least 70 strategic materials either are not present in the United States or are rare. They may be exemplified by radioactive minerals. The other phase is the growing scarcity of our resources of ores and petroleum. In some cases this is relative—arising primarily from increasing demand; in others it is absolute—due to the actual or impending exhaustion of all but low grade deposits. Our present economy requires natural resources that are not only abundant but relatively inexpensive to process. The depletion of American iron ores, for example, may warrant main reliance on high grade foreign sources in preference to domestic low grade deposits, as is the present case with bauxite.

The second fundamental condition is related to the decline of the British Empire in world affairs and to a closer working relationship between the United States and Britain. The extensiveness of British interests and, to a lesser extent, those of the Netherlands, Belgium, and France in the rich raw materials areas of the world, particularly in the eastern hemisphere, is only dimly realized by most Americans.

The vacuum created in these areas by European weaknesses is not confined to questions of political and military strategy but extends into the economic domain. The world economy is so interrelated that American industry and American enterprise must fill this breach if world recovery is to be realized and the well-being of this country maintained.

The mere engagement of American companies in agricultural or industrial source production outside of this country and its possessions of course is not a new phenomenon. The United Fruit Company for one offers notable example of long established activity in this direction. What is significant is the changing status from the exceptional to the commonplace, the great increase in scale and the necessity for locating many developments in the more disease-ridden parts of the world.

These factors are exemplified by the

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TABLE 1

United States Companies Engaged in Foreign Petroleum Development and Production *

1. American Independent Oil Co.
2. Arabian American Oil Co.
3. Asiatic Petroleum Corp.
4. Atlantic Refining Co.
5. Barber Asphalt Corp.
6. California Texas Oil Co.
7. Cities Service Co.
8. Continental Oil Co.
9. Creole Petroleum Corp.
10. Gulf Oil Corp.
11. Phillips Petroleum Co.
12. Pure Oil Co.
13. Richmond Petroleum Co.
14. Sinclair Oil Corp.
15. Socony-Vacuum Co.
16. Standard Oil Co. of Calif.
17. Standard Oil Co. of N. J.
18. Standard Oil Co. of Ohio
19. Standard-Vacuum Oil Co.
20. Sun Oil Co.
21. Texas Co.
22. Tide Water Associated Oil Co.
23. Union Oil Co. of Calif.

* Directly or through subsidiaries and affiliates
Principal Source: American Petroleum Institute

TABLE 2

Foreign Producing Countries in Which American Petroleum Interests Are Operating

Middle East

1. Bahrein
2. Egypt
3. Iraq
4. Kuwait
5. Qatar
6. Saudi Arabia

South America

7. Venezuela
8. Peru
9. Colombia
10. The Argentine
11. Trinidad

* Expropriated

Europe

12. The Netherlands
13. Hungary *
14. Rumania *

Far East

15. Java
16. Sumatra
17. New Guinea
18. British North Borneo
19. Straits Settlements

North America

20. Canada
21. Mexico
22. Cuba

American oil industry which may be considered as a forerunner in the current epoch of foreign expansion. According to available data, 23 principal American oil companies are engaged in petroleum development and production in 22 foreign countries. These companies are listed by name in Table 1. The countries involved are given in Table 2. This list would be much longer if it included non-producing areas in which American oil exploration is under way, some of which may be rich fields in the future. In still other countries American oil companies have purchasing agreements with foreign companies, or are involved in joint pipe line or refining ventures.

The volume of production and size of oil company populations in the countries listed cover a wide range. The great oil producing area of the future is, of course, the Middle East; provided the foreign policies of the United States and other countries permit. One American company alone has budgeted $1,300,000,000 for expansion in this area. Current and developing production from this region not only serves as a foundation for European recovery, but indirectly provides gasoline and oil for American automobiles, homes and industries. From the world's leading exporter of oil, the United States has shifted to a position of net importation. Oil from Venezuela that formerly went to Europe is now being increasingly diverted here as rapidly as expansion of Middle East exportation to Europe permits. Venezuela ranks second among foreign countries in proven resources. American oil producers have been long

established there and production is still expanding.

Our major expansion in foreign oil enterprises and potentially in other areas of production poses problems in which the public health profession and industry have important joint responsibilities.

In the field of public health these rest most directly on public health engineering and tropical medical groups, related to climatic and geographic location, and character of disease problems.

Unlike the relatively dispersed or marginal problems of environmental disease incidence encountered in the United States today, the prevention and reduction of the principal endemic and epidemic diseases in these areas are dominantly responsive to sanitation measures. Their medical epidemiology and clinical treatment are within the scope of tropical medicine.

As regards sanitation, there is reassuring evidence that American oil industry at least is aware of the problem. One manifestation has been its interest in recruiting public health engineers for resident foreign service and in obtaining advice on sanitation matters. While such foreign employment will always be minor in magnitude by comparison with public health engineering positions in this country, the medical department of one subsidiary operating company in Venezuela has a staff of 8 public health engineers. Another manifestation is the willingness to make heavy investment in the planning, construction, and operation of permanent modern facilities for living comfort and health, including sanitary utilities, housing and recreational facilities. American experience during the past war, which demonstrated the effectiveness with which sanitary safeguards can be applied to protect imported personnel from local disease in isolated parts of the world, has helped to make American management in foreign areas intolerant of the more complacent attitudes of their European associates and competitors. Experience in military service and the high sanitary standards in this country by comparison with those of other nations lead the American worker in foreign areas to insist upon adequate health protection.

While there is willingness in principle on the part of management to adopt optimum programs of sanitation, some weaknesses in execution exist; correction of which requires joint action by industry, public health, and schools for professional training.

First, there is a dearth of available and suitable personnel for sanitation services and other related activities. A basic cause is the lack of a career tradition of foreign service in this country, which is most acutely evident to those familiar with the functioning of the British Empire and British private enterprise in foreign lands. Since the days of Horace Greeley and the winning of the West, Americans have largely reverted to a status of geographical insularism in an occupational sense. When we do reside in foreign lands, we are too often patronizing, and insular in viewpoint and environment. This general situation perhaps offers the greatest single threat to the successful fulfillment of American foreign needs in all quarters. Such insularity is especially misplaced for American public health engineers and other sanitarians, medical and non-medical, in view of the pioneering opportunities and needs in foreign areas in this field.

In a previous article [1] it was suggested that professional malaria control workers in the United States might well seek employment in other lands or change or broaden their specialty. The need for such choice does not exist among those otherwise engaged in environmental sanitation here, but foreign service is suggested either as a permanent career, or less permanently to accelerate the gaining of a professional maturity and competency in the practice

of public health engineering in this country. The attractive salaries offered for many foreign service assignments also should not be ignored. Parenthetically, it might be noted that the scarcity of American public health engineers in pioneering foreign service was so great before the war that the general practice of tropical sanitation in some countries is still viewed as a field restricted to the medical officer and occasionally the entomologist. This reflects not merely past lack of opportunity for public health engineering employment in foreign areas, but, by comparison with medical and other biological scientists, a lack of zeal for field service under unattractive living conditions and often with little financial compensation. It is hoped that this attitude will not continue under the changed conditions of today.

The second basic factor pertains to qualification for the position. Consideration of this requires an understanding of programs and problems. The administrative pattern of sanitation programs varies with different companies and may be subdivided into two main categories: (a) division of responsibility and functions between the engineering or public works department, and the medical department, and (b) sole responsibility by the engineering department except for medical advice. Which pattern is adopted depends in part on whether sanitation is carried on only in company areas or whether outside national populations are also being served. In either case, the sanitation program is characteristically operational, involving the direct management and execution of sanitation measures.

In the second place, the major activities of the sanitary organization are more varied and comprehensive than in this country. To mention only a few fields of sanitation, the fly, the mosquito, or both, almost without exception constitute major problems of disease incidence, or at least hazard, in tropical oil installations. Other arthropods and rodents commonly are important as well. Food problems become far more difficult and complex where temperatures are high and native food handlers are employed. At the same time, resourcefulness in the management and operation of water supply and sewerage systems is made necessary by unusual technical problems, remoteness from source of supplies and equipment, and an unreliable labor force. Extensive investigational services to define the problem and basic developmental research preceding control are required.

In one Middle Eastern installation for example, direct sanitary operations on company property encompass water supply, sewerage, solid wastes, housing and ventilation, swimming pools, bathing places, control of flies, rats, mice, and roaches. I repeat, these are operational, not technical supervisory, responsibilities. Supervisory functions include industrial messes served by East Indian food handlers, ice and bottling plants, a bakery, and occupational sanitation. Fly production is far too great for effective suppression by DDT residual house spraying alone, and is responsible for a high incidence of dysentery and gastroenteritis via food, and of trachoma. The bionomics of desert flies differ greatly from those in this country and knowledge of their habits is scanty. Sources of food supply include native meats and sometimes native vegetables from night soil gardens. The present temporary water supply is turbid surface water, chlorinated but unfiltered, obtained from a watershed where bacillary and amebic dysentery and schistosomiasis are highly prevalent. The importation of plague-infected fleas and rats and of cholera-laden flies by ship and aircraft from relatively nearby endemic sources must be constantly guarded against. An adjoining area has hyper-endemic malaria and local plans for irrigation may

introduce a pressing hazard of importation and establishment of anopheline and other mosquito species.

The installation is remote and the sanitary organization must be a self-contained task force prepared to cope with all problems promptly and effectively. The engineering director and staff must possess a high order of managerial and scientific abilities spread over a wide range of sanitation fields, and aptitude for training local personnel.

At the present time, the principal avenues of employment for sanitary or public health engineers in this country are in operational assignments with municipal departments other than the health department, or on other types of assignments with health agencies. The non-health department engineer usually possesses operating experience, but this seldom extends beyond water, sewerage, and solid wastes, and is more commonly confined to only one of these. The engineer with the health department generally has a greater breadth of experience in terms of fields of sanitation, but this is apt to be limited to non-managerial aspects.

In view of the above, it is apparent that industrial employers are under substantial handicaps in selecting proper personnel. The importance of selecting the right personnel cannot be overstressed, because of the responsibilities at stake. In addition to the basic value of preventing death and illness per se, the economic case for top notch operations in sanitary services is strong. During the war it was demonstrated in tropical areas that heavy expenditures for such measures were quickly paid for by the mere cancellation of ambitious plans for enlarged hospital facilities and staffs occasioned by abnormal illness rates. In the Middle East the reputed cost of bringing a single oil worker from the states and returning him is $3,000. While greatest reduction in personnel turnover can be realized by eliminating preventable disease, it can be reduced further by providing a clean, comfortable environment obtained by prosecuting additional sanitation measures not required for the actual reduction of disease.

Another significant reason for obtaining sanitation personnel competent to do the job lies in the need to sell management on the benefits of an effective sanitation program. Oil industry executives are trained in oil production, not public health engineering. Appreciation of sanitation needs tends to be sympathetic but exoteric and qualitative, whereas appreciation of need for geologists for example, is precise and quantitative. (Of course, we public health workers in their positions would need to acquire an appreciation of geological requirements.) A successful demonstration, efficiently conducted and effective in results, is the best answer to such situations.

There is no easy solution to this personnel situation. On the part of industry two steps are indicated. First, it should seek public health engineering counsel in this country in making personnel selections. Such inquiries should extend beyond writing the usual references supplied by the applicant and should be made of impartial advisers with broad vision and a practical understanding of tropical sanitation problems and programs. That is, hand-picked recruitment is called for.

Second, there is evident need for the oil industry and others operating in tropical areas to underwrite on a modest scale facilities in this country for training and research in tropical sanitation, i.e., the tropical practice of public health engineering. Such action would seem to be more within the province of an industry-wide association, such as the American Petroleum Institute, than of the individual company. The National Sanitation Foundation, as jointly established by the food industry and the

University of Michigan School of Public Health for progress in the field of food sanitation in this country, is an excellent example of this type of enterprise.

In addition to serving as a center for technical information, field research, and consultation, this Tropical Sanitation Foundation would provide special, select postgraduate training in tropical sanitation to engineers, entomologists, veterinarians, and other professional sanitarians; thus paralleling existing facilities in tropical medical training. Such training would be primarily concerned with filling special gaps in the professional knowledge of persons preselected for foreign assignment and already possessing basic professional training and proven ability in field operations and management. For the engineer in particular, it would attempt to bridge the gaps between: (1) the sanitary engineer in municipal management, (2) health department engineering, and (3) tropical sanitation.

The author is well aware that some graduate professional schools in this country, including his own and its affiliate, the School of Tropical Medicine in Puerto Rico, offer courses in tropical sanitation adjunctive to other engineering and medical training. He is equally aware that such training cannot satisfy the need described until it becomes a distinct entity, adequately financed and staffed with faculty members dedicated to this single task and possessing an understanding of the psychologic and philosophic, as well as technologic, differences between tropical and domestic sanitation, and between operations as compared with so-called technical supervision. Although the training would be primarily engineering in character, special consideration would be given to the sanitary entomologist, and to the engineering-entomologist-biologist team concept in the control of animate non-human vectors of disease. This training would be equally apropos for such individuals employed in tropical service by government.

On the part of the public health profession there is needed first a developing tradition and interest in foreign career service, as discussed previously. Beyond and allied to this is needed a sense of national responsibility and of obligation for service in a field of activity which underpins success in a vital national interest. Third, there is needed a better understanding of the nature of the work and a desire on the part of those interested in foreign service to prepare themselves for the effective professional practice of tropical sanitation.

In its inter-American aspects, the picture cannot be considered complete without mentioning the constructive value of the Pan American Sanitary Bureau, the Inter-American Association of Sanitary Engineering, and the Institute of Inter-American Affairs in advancing the general cause of tropical sanitation. The Institute has direct relationships to the problems discussed in this article. It has provided invaluable field experience to public health engineers who subsequently have been employed by industry, and has strengthened governmental sanitation services in tropical areas. The programs of all three organizations might well benefit from the activities of a tropical sanitation foundation dedicated to training and research in all applications of tropical sanitation.

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Interstate Reciprocity for Approved Laboratories*

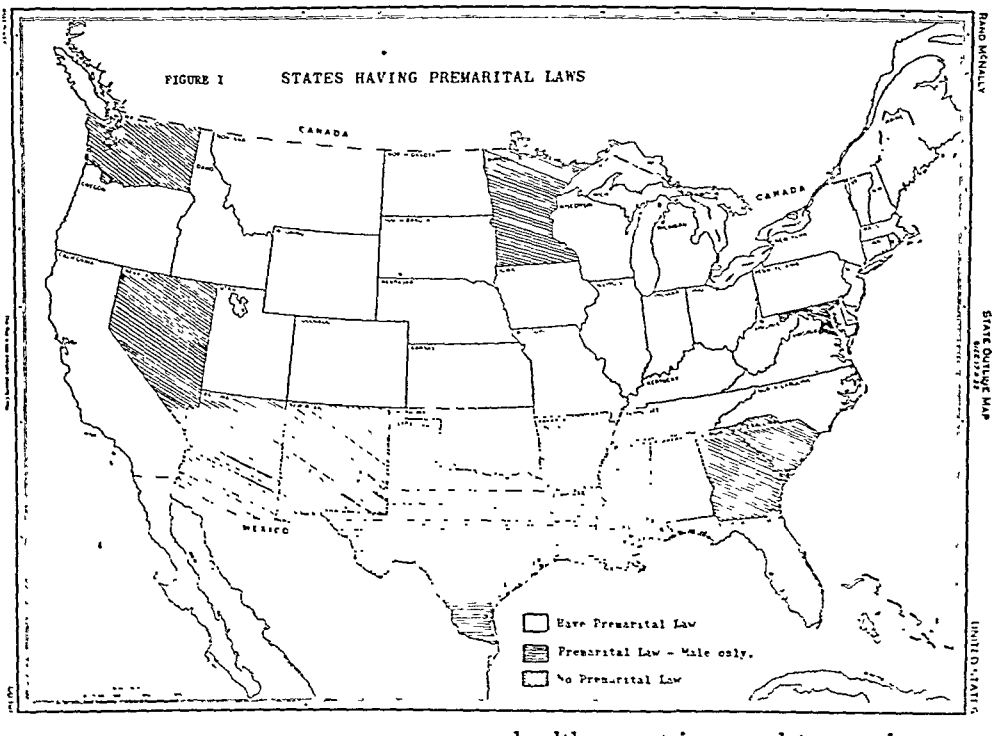
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PUBLIC acceptance of premarital examinations, both physical and laboratory, has been truly amazing. Many of us can remember the time when the only difficulty in getting married was to obtain the consent of the girl in question or possibly find the fee for the license and minister. Today the steps to the altar, although following the pattern of the past, are a little more tortuous. By public demand, 36 states now require a physical examination, including a blood test for syphilis as a prerequisite for the marriage certificate; 2 other states require the male applicant alone to be examined; 10 states have no prenuptial examination requirements. It may confidently be expected that the coming generation will find all states demanding evidence of freedom from infection before a marriage certificate is issued. Getting married now is a serious proposition, which is as it should be.

The first attempt to inject a public health aspect in regard to marriage was made by the State of Washington in 1909; it was short lived, as the law

FIGURE 1 STATES HAVING PREMARITAL LAWS



* Presented at the Annual Meeting of the Western Branch American Public Health Association in Salt Lake City, Utah, May 27, 1948.

was repealed in 1910. In 1913 the States of North Dakota, Oregon, and Wisconsin passed premarital laws applicable to male partners only. Alabama in 1919, North Carolina and Wyoming in 1921, Louisiana in 1924, and Texas in 1929 also approved premarital legislation. In no state, however, was a laboratory test required. The first acceptable law from the public health viewpoint was that adopted by Connecticut in 1935, which required both applicants for the marriage license to submit to blood tests for syphilis. In addition, a penalty was imposed upon any clerk who issued a license without a statement by a licensed physician certifying to freedom from syphilis both by examination and laboratory test. With the exception of Louisiana and Texas, all states having premarital laws now require both applicants to submit to blood tests for syphilis, and the certification by a regularly licensed physician that they are free from syphilis or communicable syphilis. Infectious tuberculosis is a bar to marriage in North Carolina and Rhode Island. Epilepsy and several forms of mental ailments will prevent marriage in North Carolina and Oregon. Oregon has gone all out, eugenically speaking, by refusing certificates if drug addiction or chronic alcoholism can be demonstrated.

If both applicants for a marriage license reside within the same state and intend to be married within that state, then the laboratory procedure is simple. The physician obtains the blood specimens, submits them to the laboratory of the state department of health, or to any of its branch laboratories, or to laboratories approved by the state department of health. Upon receipt of the laboratory report the physician then makes the required certification as to absence of infection. The applicants then proceed with the physician's certificate to the office of the county clerk or other officer designated by law to issue marriage licenses, and when the waiting period (if any) has been complied with, the licenses are then issued.

Should, however, either or both of the applicants reside in a state other than the one in which the marriage ceremony is to take place, the procedure becomes somewhat more complicated. If the premarital laboratory tests are made in their own states, the reports may be unacceptable. Even if acceptable, their home physician certifying them may not be licensed to practice in the state in which the marriage is to take place. Then again, assuming reports from the home laboratory and certification by the physician acceptable, the forms on which the reports and certification are made may be unacceptable. The lack of uniformity in requirements for out-of-state premarital applicants is striking, utterly confusing, and to the persons concerned, a violent headache.

The confusion caused by a lack of reciprocity in premarital laboratory tests performed in other states was discussed by Forster and Shaughnessy in 1942, in an informative article published in the *Journal of the American Medical Association*. They concluded that: "the establishment of reasonably uniform requirements and procedures for interstate marriages is a goal which should be reached as quickly as legal and administrative barriers can be surmounted." At the 1946 Conference of State and Provincial Public Health Laboratory Directors a report was presented on Serological Tests for Syphilis by the Subcommittee of the Committee on Evaluation and Approval of Laboratories, in which the question of acceptance of results from out-of-state laboratories was gone into in detail and a number of recommendations were made. Had these been adopted, they would have gone far to bring order out of chaos. The committee recognized "that premarital laws have considerable merit, and also feels that unless some of these problems

can be handled with less inconvenience to the public than has occurred in the past, that such laws may be jeopardized in some states."

The comparative rapidity with which states adopted premarital legislation indicates a recognition of its value in social prophylaxis. The discovery of new or latent cases of syphilitic infection, frequently unknown to exist to the victims themselves, is a matter of record in all states requiring premarital serologic tests for syphilis. Table 1 shows the number of positive, doubtful, and negative serologic findings among marriage applicants in Oregon in the past five years. These figures are on specimens examined in the State Hygienic Laboratory alone:

TABLE 1

Results of Premarital Serology Tests 1943–1947

	1943		1944		1945		1946		1947	
	No.	%	No	%	No	%	No.	%	No.	%
Positive	13	0 68	25	1 06	37	0 97	60	0 98	80	1 09
Doubtful	5	0 36	19	0 81	25	0 66	42	0 69	64	0 88
Negative	1,892	98 96	2,307	98 13	3,747	98 37	5,992	98 33	7,142	98 03
Total	1,910	100 00	2,351	100 00	3,809	100 00	6,094	100 00	7,286	100 00

The precentages are approximate, since some of the positive and doubtful results were obtained on repeat specimens. For the 5 year period 1943–1947, approximately 1 per cent of the applicants gave a positive serologic test for syphilis. These figures indicate the value of the premarital laboratory test in venereal disease control. Certainly nothing should be done to jeopardize or even to impede its continuance.

Without exception the reports of serologic tests for syphilis made in a state department of health laboratory are accepted by all other states. Some states also recognize branch laboratories of state health departments and laboratories operated by the Army, Navy, and the Public Health Service. Sending the blood specimens of an out-of-state marriage applicant to his own state laboratory, therefore, would seem to be the logical procedure. What is logical, however, may not always be most expedient. There are two classes of people who enter into the state of matrimony: those who are deliberate and those who are impetuous. Occasionally the most deliberate of deliberates will become the most impetuous, and a delay of a day or two in the marriage ceremony would seem to be the most tragic event in their lives.

To out-of-state marriage applicants, nevertheless, the question of time is particularly important, and rightfully so. Many legitimate reasons enter into the necessity of obtaining a marriage certificate in the shortest possible time. Specimens which are delayed in transit, hemolyzed or otherwise unsatisfactory, cause delay in the receipt of the laboratory report and thereby may upset a carefully planned schedule and ultimately even postpone the wedding ceremony. To prevent such occurrences and to make local laboratory facilities available, most state departments of health have approved laboratories for the performing of required tests for premarital applicants.

In the vast majority of states the responsibility of approval of laboratories has been left to the state department of health or to the state health officer. Frequently, as in our state, advisory boards have been set up to assist in formulating standards and in recommending approval. In Oregon approval is granted after satisfactory compliance with the following requirements:

a. Evidence of proper training and experience of personnel
b. Adequate facilities and equipment, as shown by inspection
c. Satisfactory performance of serologic tests for syphilis and smear examination for gonococci on at least 50 blood specimens and 10 smears sent by the State Hygienic Laboratory

With minor modifications (and they usually are concerned with the number of specimens examined) these are the requirements set up by the various state departments of health in approval of laboratories within their own states.

A questionnaire was sent to each state asking, among other things, whether it would desire to enter into a reciprocity agreement with Oregon in the acceptance of reports from approved laboratories, assuming that its standards were at least equal to those of Oregon. The following replies were received:

Would enter into reciprocity agreement	14
Would not enter into such agreement	21
Would accept reciprocity conditionally	1
No opinion	2

Eleven states* now accept out-of-state reports from laboratories approved by their respective departments of health. Several of these require certification of the report by the state health department. The Oregon State Board of Health has gone on record as desirous of accepting out-of-state reports from approved laboratories provided the standards of approval are at least equal to those of Oregon. We have had reciprocity with California for nearly a year and it has worked to the advantage of both states. At the present time we approve laboratories for a calendar year, the certificate expiring December 31. Laboratories failing to make the grade or new laboratories desiring approval, are examined in June, and if found satisfactory, are certified for the remaining six months. A list of approved laboratories is sent to all county clerks in the state; supplementary lists are sent whenever necessary.

One of the greatest deterrents to reciprocity has been the lack of a standard premarital certificate form that could be used by all states. My own state, Oregon, is probably the worst offender in the number and variety of forms necessary to be filled out by the physician and laboratory. They vary in size, shape, and content. If a standard premarital certificate could be evolved from the conglomeration of forms used by the various states, a long step forward would have been taken toward interstate reciprocity. The Subcommittee of the Committee on Evaluation and Approval of Laboratories recommended in 1946 that the Conference of State and Provincial Public Health Laboratory Directors approve a standard premarital certificate form. It is my hope that this Conference will continue to give this matter its serious study. Unquestionably legislative action would be required in some states before a standard certificate could be adopted. Uniformity has been attained in birth and death certificate forms; it can be attained in the marriage certificate form also.

Personally I have been a firm believer in a national marriage law. Eventually I think we will have one. But until that time comes we can at least adopt a standard procedure for the laboratory portion of the premarital requirements. A serologic test for syphilis, accurately performed, will usually give the same results in Oregon as in Maine, in Florida as in Michigan. That has been demonstrated by the evaluation studies of state laboratories conducted by the U. S. Public Health Service for the past ten years. The errors inherent in the various procedures are being gradually eliminated by refinement of technique.

* States accepting out-of-state approved laboratory reports: California, Colorado, Florida, Kansas, Louisiana, Missouri, North Carolina, Ohio, Rhode Island, Wisconsin, Wyoming. Nebraska would accept reports conditionally.

The use of cardiolipin antigen, now being checked on a nation-wide scale, may offer another step in the improvement of syphilis serology. Availability of better trained technicians will shortly be an assured fact. Performance of serologic tests for syphilis by numerous hospital and private laboratories has been shown by intrastate evaluation to be on a par with control state health department or author laboratories. For all these reasons, therefore, reports from laboratories approved by their own state health departments should be given the same recognition and status as those from the state laboratories themselves.

At the present time we have 52 laboratories in Oregon approved for the performance of premarital and prenatal serology tests for syphilis. These cover the entire state. Thirty of these laboratories made a total of 14,118 premarital tests in 1947. They thus contributed to the convenience of the persons concerned and to the enforcement of the state premarital law. We have found that many Oregonians go across to our neighboring state of Washington which has no premarital law, to escape the inconvenience of getting married in Oregon. Providing local laboratory facilities, therefore, is good business from all angles.

One objection to interstate reciprocity for approved laboratories which has been emphasized, but which is not insurmountable, is the reluctance or even the refusal of county clerks to accept out-of-state reports. It would seem that unless a state law specifically left this matter to the discretion of the license issuing authority, a refusal to accept an out-of-state report, certified as to its validity by the state department of health of the state in which the ceremony is to take place. would be null and void. The real problem of interstate reciprocity would be to arrive at some workable procedure to keep license issuing authorities informed of the names and addresses of all approved laboratories.

According to the subcommittee report already referred to, there were, in 1946, 2,184 approved laboratories in 27 states. The number of approved laboratories in any one state varied from 4 to 445. Unquestionably the number of approved laboratories will increase from year to year. In addition, a number of laboratories fail annually in evaluation tests and some approved laboratories go out of existence. Thus, two hundred laboratories changed status during 1946. It would require therefore, the full time of several clerks to tabulate information on approved laboratories and make out annual lists for distribution to all states.

The agency best suited as a national clearing house for approved laboratories is the U. S. Public Health Service. It already has the machinery for evaluation of laboratories in case evaluation by a central laboratory is desirable and feasible. It is scientific, disinterested, and has the confidence of all the states.

A standard laboratory form to be used by all approved laboratories can be devised which would give all the information required by the various states. The following information is suggested:

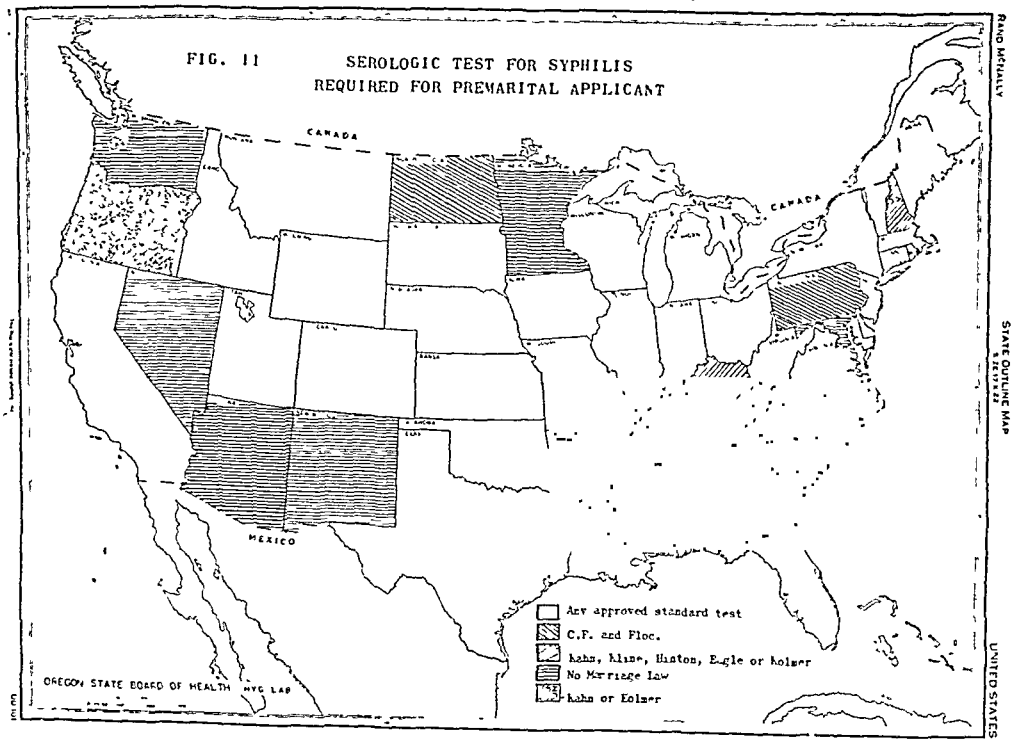
1 Date specimen collected
2. Date test made
3. Name, address, age, color, and sex of applicant
4 Name and address of physician
5. Results of serologic test or tests, giving name of test or tests made
6. Signature of director of laboratory
7. Certificate number or approval stamp indicative of its status as an approved laboratory

Several states issue rubber stamps which are used by their approved laboratories in identifying the reports as emanating from officially accepted laboratories. Alabama has issued a seal to its public health laboratories to be used for stamping certificates, and is contemplating the extension of its use to approved hospital and private labora-

tories. Other states, including our own, issue a certificate number to each laboratory; this number is indicated on the report. The use of a seal such as that devised by Alabama could be modified to meet the needs of each approved laboratory in any state by substituting the name of the state for Alabama, and inserting the certificate number given to each laboratory in the center of the seal. Each state could authorize the use of such seal by proper regulation, either loaning it to approved laboratories and maintaining ownership of it at all times, or else authorizing its purchase by the laboratory concerned. Each state would be responsible for the proper use of its seal. A standard laboratory report with the imprint of the seal could then be accepted nationally.

Figure II shows the kind of serologic test required by the various states.

The majority of states have wisely agreed that any standard serologic test for syphilis may be used on premarital blood specimens. Based upon use in the annual evaluation of syphilis serology tests conducted by the U.S. Public Health Service, the following may be accepted as standard tests: Eagle, Hinton, Kahn, Kline, Kolmer, Mazzini. A few states have their own modification of either the complement-fixation or flocculation test. Such modified tests could be made acceptable if their results in specificity and sensitivity fell within the required percentages for two annual evaluation series. North Dakota and Pennsylvania require both a complement-fixation and a flocculation test. The use of these two techniques in testing for evidence of syphilis was recommended by the Subcommittee of the Committee on Evaluation and Approval of Laboratories. Ohio requires a recheck if the first test is doubtful or positive. Many states make such rechecks a matter of routine. Oklahoma requires all positive and doubtful specimens to be checked by two different tests. Vermont permits any standard test; however, if the flocculation test is positive, a complement-fixation test must then be made. Laboratory examination, usually a smear, for absence of



gonorrhea is required in Illinois, and if indicated, in Kentucky, Louisiana (male only), and Oregon.

Space does not permit, nor does this paper warrant discussion of the relative merits of the various serologic tests for syphilis, or of the more controversial comparison of the flocculation and complement-fixation tests. Anyone interested can study the results of the annual evaluation tests or search elsewhere in the literature for comparative values. Suffice it to say, most states seemingly agree that any single standard test for syphilis, properly performed, is acceptable.

Another question which has given rise to some discussion is the number of specimens a laboratory should examine in the evaluation of its competence. Here a wide variety of practices may be noted. Some states require as few as 5 specimens, others as high as 200. Some states submit whole blood, others only serum specimens. In Oregon we send out annually 50 whole blood specimens, roughly 35 from syphilitic and 15 from normal donors. Sufficient blood is withdrawn from each donor so that every laboratory receives at least 5 ml. The subcommittee recommendation was to submit "not less than 75 blood specimens from presumed non-syphilitics and 75 blood specimens from syphilitics—the percentage sensitivity and specificity attained shall not be less than that required by the U.S.P.H.S. of state laboratories. . . ."

Frequency of inspection varies in the states from quarterly, semi-annually, and annually to every 3 years. In Oregon, inspection is made annually with a return visit if indicated.

SUMMARY AND CONCLUSIONS

Thirty-six states now have a premarital law requiring a physical examination and blood test for syphilis on both applicants; two states require a blood test, if necessary, on the male only. Laboratory reports from any state laboratory are accepted by all states. Any standard serological test for syphilis may be performed. Some states require reports to be made on their own forms; some will accept forms of other states. There is little uniformity in the forms of the various states.

Eleven states accept laboratory reports from out-of-state laboratories which have been approved by their own state department of health. More states would accept such reports if evaluation requirements were equivalent to their own. A standard syphilis serology report form for marriage applicants is highly desirable and would make the goal of interstate reciprocity easier of attainment. A seal to be issued to approved laboratories by their state department of health, which could, by substitution of the state name, be used in any state, is recommended.

Interstate reciprocity of premarital serological tests is particularly desirable among states which border upon each other's boundaries. California and Oregon already have such reciprocity. Washington, although not having a premarital law, does have a prenatal law which requires the performance of serologic tests for syphilis. Approval of laboratories by the Washington State Department of Health will be completed shortly and if their standards approximate those of Oregon, a reciprocal agreement will be entered into. Since, in the vast majority of states, the state department or state board of health is the agency responsible for the approval of laboratories, it would seem desirable that the Association of State and Territorial Health Officers initiate a study leading to the adoption of interstate reciprocity. The Conference of State and Provincial Public Health Laboratory Directors and the U. S. Public Health Service could be called upon to offer suggestions and recommendations.

I am not in agreement with a state laboratory director who replied to my

questionnaire: "Since the war is over I see no particular indication for expediting marriages." Love, like disease, knows no boundaries, and unlike disease we should not and cannot restrict it to the confines of any one state. The convenience of the public should always be considered. Forster and Shaughnessy hit the nail on the head when they stated: "Any public health measure should accomplish its objective with the least possible infringement on the normal activities of the citizens. Few of the prenuptial laws can be said to conform fully with this principle as far as interstate marriages are concerned." The attainment of interstate reciprocity in syphilis serology depends upon the interest and desire of those responsible for the administration of the premarital laws to carry it into effect. It can be done. It should be done.

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WHO Alexandria Regional Office

Early in February representatives of 200,000,000 people in some 20 countries met in Cairo to set up the WHO Regional Office for the Eastern Mediterranean. It was decided to open this regional office in Alexandria on the site of the Sanitary Bureau on July 1, 1949. Sir Aly T. Shousha, Pasha, Egypt's Undersecretary for Health and Chairman of WHO's Executive Board was unanimously elected Director. For the first six months' operation, $100,000 has been made available by WHO.

Among the chief public problems awaiting action in the Eastern Mediterranean are schistosomiasis which is said to affect 65 per cent of Egypt's and 80 per cent of Iraq's population; hookworm disease, and malaria. The last named, through undermining the energy of the worker, is one of the principal causes of low food production in potentially rich agricultural areas. Others are the 3 T's—tuberculosis, trachoma, and typhoid.

Certain preliminary work of this regional office began in March—advisory services to Pakistan for malaria control, to Pakistan and Egypt in tuberculosis and maternal and child health, to Egypt and Turkey for venereal diseases, and to Ethiopia for training programs in such basic fields as public health nursing and sanitation. Also more than 30 study fellowships have been granted to medical personnel from this area.

Use of the University in Increasing the Expertness of the Nurse*

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THE modern university is in a cogent and strategic position to offer leadership in the preparation of the professional worker for all fields of human endeavor. One of these very essential workers is the public health nurse.

The extensive facilities and personnel at the disposal of the university places a definite responsibility on it to assist in the preparation of the public health nurse, who must be especially well grounded, in the biological and social sciences and their application, to attempt to meet adequately the health problems and situations of today and tomorrow!

The very favorable position of the university for this purpose is enhanced when facilities are available within its campus for nursing education and public health as well as public health nursing education. However, whether this is a fact or not, it is imperative that the public health nursing faculty be deeply concerned with, and when feasible participate in, nursing education and curriculum construction and teaching on both the undergraduate and graduate level. This is a vital necessity if intelligent plans are to be formulated for advanced preparation of public health nurses.

The public health nursing curriculum has substance, only when it is built on a thorough knowledge of the content of basic nursing education as well as on the present and anticipated needs in the health field.

What then, are some of the vital present needs? One of the key positions today in schools of nursing is that of the faculty member responsible for integration of the social and health concepts of nursing. To date, too few universities have offered special preparation for this important work. Nevertheless, in many instances, with far greater enthusiasm than wisdom, public health workers have convinced schools of nursing of the necessity of having such personnel on the teaching staff. Too often, fine enthusiastic public health nurses are employed who are almost totally, if not entirely, unprepared for this type of arduous and exacting work. The inevitable result is confusion if not outright failure in the important program of integration of the social and health aspects of nursing throughout the basic curriculum. Added to this, is the disillusionment of all the personnel, the public health nurse, the general nursing faculty and the hospital personnel, as to the desirability of having a faculty and a curriculum which includes the incorporation of the social and health aspects of nursing. There are, of course, notable exceptions.

The National Organization for Public Health Nursing stands ready to give suggestions as to the recommended

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qualifications for the person taking such a position. Consultant nursing assistance when needed is available through the above agency, the regional offices of the U. S. Public Health Service, and the nursing divisions of state health departments upon request. It should prove very helpful to schools of nursing seeking this type of personnel to have these services. Effort should be made to have them fully utilized. When it is known what the preparation needs to be, there is a more reasonable chance for the employment of a qualified person and for the success of the undertaking.

It follows certainly, that the university must provide assistance in the preparation of this type of personnel through both theory and practice. To do so takes imagination and experimentation. However, at least two types of assistance would appear feasible, a long-range program of study that will prepare the mature and experienced public health nurse in this specialty, and a short-range study plan to bring together those persons now attempting this work to offer opportunity to thrash out problems together, exchange ideas, and gain new insight, thereby materially implementing knowledge and it is hoped ability, to do the job better. Simultaneously, there would be provided invaluable data from actual experience that could be sifted, then incorporated into the curriculum of the longer program of study. The latter would be for the nurse who showed particular potentialities and interest in this area.

Exceedingly important also is the provision for continuous, meticulous exploration and evaluation of the preparation in public health nursing, including both theoretical and field preparation given by the university to the potential public health nurse, or the public health nurse with limited public health experience. Moreover, efforts need to be directed toward determining the extent to which this preparation has succeeded and to finding its shortcomings. In part, this educational endeavor may be measured by the degree of ability actually demonstrated on the job by the recently trained public health nurse, and by determining how extensively and intelligently an assigned job is handled. Of necessity, then, a continuous critical and searching analysis must be an integral part of curriculum planning. This is tremendously important if the education given by a university for this group is to be alive, meaningful, and constantly geared to current and anticipated needs in the public health field. The analysis should be a joint one; the university public health faculty, the faculty in other departments of the university participating in the program, the service agency leaders in the community, together with the recipient of public health nursing preparation, the staff nurse, must sit down at specific intervals and assay and equate the assets and liabilities of preparation as offered. This is equally essential whether the preparation is given as a part of the basic school of nursing program, as in some collegiate schools, or as a program of study after the completion of basic school of nursing education.

Such a group analysis should offer an excellent opportunity to bring into sharp focus those parts of the program needing further study and to suggest possible modification and strengthening. By this means, preparation not only is more meaningful, but also is more apt to be kept dynamic.

A full-time faculty member who acts as a field coördinator is of great assistance in this regard, especially when field placements encompass a large geographical area.

Routine field placements as such may then to a large extent be obviated, and more attention given to individual background, needs, interests, and personality. After thoughtful examination, all these factors may be carefully considered in

relation to the particular type of program and the general philosophy of the agencies used. The so-called routine first-level field experience then, not only correlates more nearly with theory, but becomes a far more vital and stimulating experience for both the student and the agency. The university can and should do much to prepare the student to take a major responsibility for implementing the depth and breadth of the field experience by her own thoughtfull approach and frank discussion of the experience. Much of value may result from a sincere attempt to evaluate performance as a professional worker, with full cognizance of the limitation imposed upon the situation by both lack of or limited previous experience of the learner and also by the type of learning opportunity at hand. The student's ability to accept and to use effectively this opportunity for self-direction in field experience will depend to a considerable degree upon the responsibility previously given the student in the university, under guidance, to build a program of study which permits discriminating but broad choice of electives in public health and related fields. The required courses or core curriculum should be limited to the irreducible minimum. Actually there is need for relatively few fundamental courses. This is not the hazardous assumption it might appear at first, but rather a sound one lending itself to materially strengthening on an intelligent, selective basis, individual program planning. It places primary responsibility for planning on the person most concerned, the learner, thus affording a rich opportunity to the prospective public health nurse, that it is hoped will encourage continuous self-education and self-analysis.

The above discussion presupposes that the agency and its field teachers are ready and willing for provocative questioning by the student. It is the university's definite responsibility to stimulate the field agencies' interest in this type of broad field experience by interpreting its creative aspects, and the anticipated greater expertness that should develop on the part of the learner. For through increased participation, assumption of more responsibility and greater self-stimulation, the prospective public health nurse, it is reasonable to expect, will be definitely assisted, in gaining expertness in the practice of public health nursing and in growth as a professional person that will make for distinctly increased effectiveness.

Another method that might be used in addition to the field conferences, by and with the field coördinator, to increase nurse expertness, would be to have workshops for field teachers. If such continuation study is deemed desirable, consideration should be given to two types of workshops — the "pseudo" workshop for the about-to-be field teacher, or those with very limited experience in this activity, and the "true" workshop where field teachers will bring their actual problems for study and discussion. In both instances, the assistance of many different experts from various fields such as business administration, education, and the like, usually will be readily available in the university for the asking, granted. that at times they must be smoked out. Such persons bring an invaluable fresh approach and materially aid, not only in enriching a period of intensive study, but they also lend definite assistance to the solving, on a broad basis, of some of the knotty problems presented.

One precaution appears warranted. To be assiduously avoided, is the tendency on the part of universities to repeat special intensive work on the same level, time and again. For example. what is invaluable on an elementary basis to the beginning field teacher, has little of value or stimula-

tion for the field teacher of several years experience. Greater expertness is needed by the workers in each group. Therefore, continuous critical analysis of such programs offered is vitally essential. Otherwise, sincere attempts on the part of the university to increase nursing expertness will be, at one point very meaningful, at another superfical and dull, defeating the immediate purpose and stifling future interest.

Through their own resources and by the importation of special consultant assistance, all universities are probably able to meet on a short-term basis in a reasonably satisfactory way practically any need in a specific area, and they should; however, there is also the crying necessity for universities to be ready to offer special preparation in specific areas on a long-term basis, through developing complete programs of study with correlated theory and practice.

Not all universities will be able to give rich opportunities in each of the areas of specialization equally well. Therefore, serious cognizance should be taken of this fact and each university should scrutinize its resources to determine those areas of specialization in public health where it feels it has unusually rich ones, either developed or that could be developed for advanced study, whether this study be in supervision, mental hygiene, administration, or some other phase of public health nursing work. Then the task should be to concentrate on development in this area or these areas. Such information should be given wide publicity and, of course, should be known to all universities concerned with the education of nurses so that students may be directed where they will receive the finest and most complete preparation possible. Another important reason for detailed information about such programs being readily available, is so that another university will not be starting a similar program when the need is being well and adequately met, but rather direct its energy to assay unmet needs in the health field. It is assumed that a thoughtful detailed study by the university, of course, will precede the establishment of any program, to determine if resources are rich and extensive enough either to be supplemented or developed for the special program of study needed by advanced public health nursing students. As this is done more widely, beginning and advanced preparation will be strengthened. To develop areas of special preparation adequately would seem to necessitate not only the planning mentioned above, but also the initiation of more extensive plans for internships. There is nothing new about this suggestion of internships. They have been urged by outstanding public health leaders for years, but in too few places are internships actually available so that theory and potential expertness may be put into operation under guidance over a sufficiently long period of time to enable some degree of significant practical expertness to mature. Long-term planned field practice is an essential ingredient of any advanced program of study in public health. Actually it is the very foundation on which final expertness rests, granting that always more knowledge and experience are needed to gain stature as an expert. Little can be developed of intrinsic worth without a strong foundation that has been painstakingly built.

Assistance from the university to the field agencies and vice versa in strengthening the preparation of public health nurses for various types of positions, such as that for the beginning worker and for the seasoned public health nurse interested in increasing general competence in the field of public health, or in some special aspect of it, should be continuous. For such preparation will be ever changing. Meanwhile, the

alert university will keep its finger on the pulse of community needs, as well as have the vision to see beyond, to national and international health needs and constantly envision and formulate concrete ways in which they may be met and then put these ideas into action as an integral part of the curriculum.

Furthermore, the university may well be utilized to assist with agency inservice education. There are various methods by which this may be accomplished, only two of which will be mentioned. One, university personnel may act on a consultant basis and assist thereby with the development, launching, and evaluation of inservice educational programs. Such a plan implies use in a limited geographical area to make it feasible. For example, the supervisors in a local agency might be concerned with the development and use of proficiency, efficiency, and evaluation reports, and might quite well turn to the university personnel for assistance over a period of time, perhaps a year, in studying ways and means of handling this very essential and delicate function of every public health nursing supervisor.

Another method might be to have university personnel actually give, individually or as a member of a team, special assistance in an institute or workshop type of conference for a group of public health nurses or a group of community workers. Included might be nurses from all nursing fields. Here the techniques of group dynamics might be utilized advantageously to stimulate discussion and to demonstrate an effective method of teaching. The specific content given could be planned to meet particular current public health problems. For example, the matter might be handled by a workshop centered around such a problem situation as, the use of the mental hygiene approach in the understanding and the handling of chronic illness by public health workers, nurses, doctors, and social workers. This type of conference would be concentrated over a short period of time. To plan and complete means for follow-up and evaluation of results *before* undertaking the project would be imperative. This is an exacting and tough task.

Too frequently in the past, and even today, a stereotyped pattern has been followed in organizing an institute or group conferences. They have entailed the giving of mammoth quantities of didactic material with little or no regard for group participation, or for scrutinizing results after a period of time by criteria determined before the conferences began. Granted, this latter may be difficult; the results disconcerting! Certainly if the assets do not outweigh the liabilities, they should be known and faced and the method discarded or revamped and revitalized.

It is readily seen that this discussion might go on for some time. Actually the extent of the university's usefulness in increasing nursing expertness is indeed limitless. In summary it might be said, provided personnel and facilities are available—and they are, within most universities—what is needed urgently is leadership, initiative, resourcefulness, and creative imagination to use what is there. Unfortunately this lack is, often, the only deterrent. Since they may prove provocative to others, mention will be made of those areas in which one university has found public health nurses constantly and repeatedly requesting assistance to increase their expertness. Of course, it is not too hazardous to guess that these requests are far from unique, but rather of the very common garden variety. They fall under the following general headings:

1. General overall program planning
2. Budget making and cost analysis
3. Coördination of functions of various health and welfare groups and the determina-

tion of the limits of responsibility of each
4. Effective use of community councils
5. Planning of special educational programs to increase scientific knowledge and to facilitate its use

An essential corellary to the foregoing comments might well be that the public health nursing faculty, to give leadership and guidance as indicated, must be well prepared for the job by actual academic preparation and wide and varied public health experience, and that each faculty member must constantly be broadening and deepening individual perspective while simultaneously gaining greater specific knowledge and adeptness in application. Therefore, there is a crying need for greater opportunity than may be gained in such a meeting as this for a university nursing faculty to sit down together, thoughtfully pooling and exchanging ideas and methods. Such work conferences would facilitate and stimulate continuous growth of the faculty which must be ever alert to ways of maintaining and improving nursing expertness. Moreover, it should be remembered that to develop nursing expertness there is unanimity of opinion that there must be opportunity to gain theoretical knowledge and opportunity for practice in its application. Both should be well coördinated and integrated.

To date, the opportunities for university faculty to be exchanged with agency personnel have been sporadic. Is this not something that should be explored, developed, and put into operation on a wider scale without delay? Then, the university as well as being in a strategic position to offer leadership, would actually tend to maintain a high degree of competence in operation. Then, the university would become a dynamic center of learning for health workers with the field agency as the laboratory—the testing ground. Functioning in this manner, the university could not but contribute markedly and continuously to increasing the expertness of the nurse.

Leslie Dana Medal to Dr. Post

The Leslie Dana Gold Medal for 1948, a national award given annually by the St. Louis Society for the Blind for outstanding achievement in the prevention of blindness and the conservation of vision was presented on March 25 to Lawrence T. Post, M.D., of St. Louis.

This award in the field of public health is given upon the recommendation of the Association for Research in Ophthalmology.

Dr. Post is Professor of Clinical Ophthalmology and head of the Department of Ophthalmology at Washington University Medical School. He is Ophthalmologist-in-Chief at Barnes Hospital, McMillan Hospital, St. Louis Children's Hospital, and the Washington University clinics.

A School Health Demonstration Based on Sound Public Health Practices*

THOMAS R. HOOD, M.D.

Formerly Director, Kansas School Health Demonstration, now attending School of Public Health, Harvard University, Boston, Mass.

A PRESUMPTIVE title was chosen for this paper without conceit but with the firm conviction that much of the Kansas School Health Demonstration is basically sound, and that the policies involved are important in the development of a program which is practical and includes a majority of the factors affecting the health of school children.

A State Health Education Council was formed and numerous working committees were appointed in 1944.[1] The council studied school and community health problems and made specific recommendations for promoting and building stronger local school health programs. They observed that the health of the school child is affected by many events which occur outside of the school walls. They believed that a program directed only at children in school is narrow and not so likely to produce real results as a community health program. Their conclusion was that the best program was a community-wide generalized public health program with moderate emphasis on services to the child from the time of its conception until it is through school.

Certain excellent manuals[2] were compiled and edited by the State Health Education Council and published by the State Board of Health and the State Superintendent of Public Instruction.

Having developed concepts and manuals, the council wished to reduce the ideas to practice in the form of a 5 year school health demonstration. Cowley County, Kansas, was selected as one of the favorable places to conduct such a demonstration[3] and state and federal funds were made available to supplement local funds in carrying out the program.

Cowley County is essentially a rural county of 35,000 population, containing two towns: Arkansas City 13,000, and Winfield, 9,000. There are two junior colleges and one university in the county.

A budget of $35,000–$40,000 has been used and the staff was originally planned to include a health officer, a pediatrician (loaned from the State Health Department), a supervisory nurse, 8 public health nurses, a sanitary engineer, a sanitarian, 2 clerks, and a statistical clerk. At no time have all positions been filled. If we were embarking on this venture anew, we would certainly include a full-time health educator.

In this county of 35,000 population, prior to reorganization, 7 separate agencies employed 11 public health workers. The agencies included the county, each of two towns, two school boards and two public health nursing associations.

When this demonstration was proposed, we met with interested individuals and groups to discuss the proposal and to seek their active coöperation in car-

* Presented at a joint session of the American School Health Association and the Public Health Nursing, Public Health Education, Maternal and Child Health, and School Health Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

rying out a health program of the general type suggested.

This local organizational work was done rather rapidly and was completed in about 2 months. Various questions about such reorganization were raised by individuals and groups: that it was "socialized medicine"; that state and federal agencies would run it; that certain specialized jobs (bedside nursing) might not be done as well by the new organization; that personnel presently employed might not meet merit system requirements.

The argument relative to socialized medicine was met by three facts: the local medical society approved of the reorganization and its more extensive public health services; the Health Department efforts do not include treatment of diseases or defects, therefore, do not constitute practice of medicine by a governmental agency; the additional and more adequate health services to the people of the community would make them more, rather than less, satisfied with the total health service available to them, hence would tend to reduce demands for the socialization of medicine.

The question of outside control and the misgiving that specialized jobs might be neglected were answered by pointing to the local board of health which had the responsibility of developing the program in a way to meet the needs and demands of the community. Although we hoped that all groups would stay in for the whole 5 year period, an "escape clause" was included in the resolution so that one or more groups might withdraw on 6 months' notice. To date, no group has utilized this clause.

Existing personnel did not all meet merit system requirements. One individual took a special examination to qualify. Others became permanent employees after revision of a clause of the merit system to accept them as incumbents. If reorganization had included the necessity of discharging public employees of long service and considerable following, the reorganization would have been impossible.

By resolution, the 7 agencies combined their finances, personnel, and interests in the "Joint Health Department of Arkansas City, Winfield and Cowley County." The resolution established a Board of Health with a representative from each of the agencies involved and from the medical and dental societies.

As soon as reorganization became effective, extensive reorientation of the staff began. Nurses who had previously done only bedside services, school nursing, or inadequate county-wide services were brought into the Health Department and given the task of doing a generalized program within an assigned district. The duties of the Health Officer and the sanitarian expanded suddenly and explosively.

Continuing efforts have been made to inform the community of the aims, objectives, and work of the Health Department through newspapers, radio, community meetings, talks to civic clubs, observance of Public Health Nursing Week, and through the Board of Health and the daily contacts of the Health Department staff. A special effort consisted of a Health Education Workshop held in conjunction with the rural teachers' institute. A second workshop this fall included teachers from the two towns with the rural teachers and many community leaders. These efforts have materially increased the understanding of the community and of special groups. Needless to say, such efforts must be perpetuated and expanded.

We will now proceed to discuss the pattern that our generalized services have developed and needed alterations therein. Services have been designed to foster and encourage individual responsibility for health and to supplement and aid the practising physician rather than supplant him. Health Department serv-

ices are available to all people of the county, not merely to the indigent. We believe that the program gathers much strength and support from following these policies.

Expectant mothers and unborn children have had nursing service, but no prenatal clinics have been held. Good prenatal care is rendered by private physicians; provision is made for care of indigents and our objective is to get patients into the practising physicians' offices rather than into a prenatal clinic. Our prenatal services have been at low level but have gradually increased in amount. Mothers' classes are being started to serve this group.

A premature center is being developed in one of the local hospitals and our nurses are aiding a gradually increasing number of mothers and new-borns when they return home from the hospital. Home deliveries are rare but a nurse assists with them before, during, and after delivery.

At several centers in the county we have regular well child conferences for infants and preschool children. Through these conferences families are encouraged to seek regular health supervision from their family physician. Any infant or preschool child is eligible for these conferences if he is not already receiving medical supervision of a physician. In isolated areas, screened school children are examined in these conferences.

Health supervision of school children includes, if possible, a final preschool examination at the well child conference or by the family physician, or, if not possible, an examination soon after entrance. From then on examinations are done after screening by teacher and nurse. A summary of each child's preschool record is placed on his school record when he enters school. Children known to be entering school in the fall are sent a letter explaining the need for a health inventory including a dental examination. Blank record forms are enclosed. The suggestion is made that they get this service from the family physician, but the door is left open for their parents to make an appointment for conference at the Health Department.

When screening is done on children in school, such an option is offered again. A large proportion of these children go directly to the family physician. The nurse informs the family physician of the reasons for referral. Does this procedure have any advantages? We think so. It is highly acceptable to the local physicians; it requires less nurse and health officer time because there are fewer children and parents to be served at our conferences; the need for nurse follow-up is greatly reduced; less effort by parents is needed because only one visit is made in lieu of two; direct remedial action can be taken at this visit; it encourages individual responsibility. The defect of the plan lies in the difficulty of getting pertinent data from the physician for the school health record. This is solved in part by returned referral slips with notations on them. Direct referral of selected children to the family physician promises to be one of our most successful procedures.

Other services have evolved into a certain pattern. Immunizations are offered at conferences—every other year in the larger schools, in any elementary school where the immunization level for smallpox, diphtheria, or whooping cough has fallen below 75 per cent. Last year a truetone audiometer test and the Massachusetts vision test were done on all school children in the county, grades 1 through 12. In the coming school years we expect to use these devices to test grades 1, 3, 6, and 9, plus all new students and those screened as needing a test. Snellen test and observation are to be relied upon for children in other grades. The Snellen test will, we believe, find children who develop myopia rapidly; the more complicated vision test includes means to detect pathological

conditions which develop less rapidly, and hence may logically be done less frequently.

Dental inspection has customarily been done annually on all school children in the two major cities. Last year it was done for the first time on rural school children. Such inspection, while it has been of considerable value, violates the principle of encouraging individual responsibility for dental care, and, in fact, does not even teach children to visit their dentist once a year. It does teach them to wait for the inspection provided to find out whether they need to go to the dentist. We are seeking to alter this automatic inspection to a program designed to educate parents and children to seek annual dental inspection and care from their own dentist.

Sanitation work has been productive in several ways. Rural school sanitation has been improved under the guidance of the public health engineer. Milk sanitation has been much improved by generation of public support for proper sanitation and by adoption and enforcement for the first time of Standard Grade A Milk Ordinances in the two principal towns. City-wide DDT spraying was introduced in the two towns and is being incorporated with the city governments' other regular services to the public.

Teaching of health to children has been done in the schools, and the state and local school people have developed unit material toward this end. Teachers have integrated health teaching with other subjects and our staff correlates it with their services.

The remaining basic health services were organized and conducted in a fairly routine fashion. We must mention one undertaking which we regard as a major error in policy and planning.

We devised and utilized a mass technic in our overzealous efforts to render services efficiently to children in scattered and small rural schools. Centers were used and children from nearby schools were transported to one of them at a scheduled time. Once there, each child had, in rapid succession, a vision test, hearing test, dental inspection, and immunization. On certain days they also had a brief physical examination by a physician. Nurses and teachers were present but no parents. Follow-up reports were filled out later and mailed to the parents.

This method had two merits—it gave the examining physician an interesting cross-sectional view of the physical status of school children and it mechanically provided some services. Its shortcomings are almost too numerous to mention, but include: no opportunity to confer with parents and to observe familial characteristics in them; excessive disruption of other work; lag in nurse follow-up; bizarre reports carried home by the children; complete lack of real educational value. The public relations feature was poor in that services carried to each rural school do much to engender knowledge and support of the health department and its activities.

Services to preschool children have been satisfactorily active. Those rendered to elementary school children have been disproportionately numerous. As community understanding and planning progress, services should increasingly be directed toward the prenatal and neonatal groups. In addition, more services should be available in secondary schools and colleges.

SUMMARY

The Kansas School Health Demonstration was started after state-wide organization and planning and after reorganization of local services. It is based on the idea that the health of the school child can best be improved through a generalized well rounded public health program which places moderate emphasis on the health of the child from con-

ception onward, rather than one which confines itself to activities within the school. Increasingly, it has stressed the importance of individual responsibility in obtaining suitable health guidance, and has sought to educate the individual to recognize the importance of his health and stimulate him to seek it for himself and his family rather than to wait for government or charity to provide for his needs. Services are available to all, regardless of financial status. The program has been directed toward supplementing rather than supplanting the work of the practising physician and dentist. It is an attempt to demonstrate that a health department of reasonable size can, coöperatively with school systems and other local groups, develop and carry on the type of program described in a unified, effective manner.

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Cardiovascular Disease Control Committee

The National Advisory Heart Council of the National Institutes of Health has selected a subcommittee to assist in passing upon requests for grants to finance community control projects. Although no appropriations have yet been made by Congress (March, 1949), applications for research and construction grants aggregating many millions of dollars have been received by the Council.

The members of the subcommittee are:

F. C. Beelman, M.D., Director, Kansas Board of Health
Marjorie Bellows, Statistician, American Heart Association
William H. Bunn, M.D., Practising physician, Youngstown, Ohio
Charles A. R. Connor, M.D., Medical Director, American Heart Association
C. Mayhew Derryberry, Chief, Health Education and Training, U. S. Public Health Service
T. Duckett Jones, M.D., member of the Council and Medical Director, Helen Hay Whitney Foundation, Chairman
Ruth E. Lynch, Los Angeles County Tuberculosis and Health Association
H. M. Marvin, M.D., President-Elect, American Heart Association
C. Martin Mills, M.D., Health Officer, Richmond, Calif.
Mary B. Moss, Executive Secretary, American Association of Medical Social Workers
David D. Rutstein, M.D., Harvard Medical School
Marion Sheehan, University of California School of Nursing
Estella Ford Warner, M.D., Chief, States Relations Division, U. S. Public Health Service

Laboratory Handling of Radioisotopes in Cancer Research*

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IT is not facetious to say that the impact of the development of the atomic bomb has been felt as keenly as a contribution to the welfare of mankind, as in the programs for the development of weapons to destroy mankind. The chain-reacting uranium pile which can be used to manufacture plutonium, a basic component of an atomic bomb, can also be used for the manufacture of radioactive isotopes, which, as of June 30, 1948, were being used in 247 industrial and educational institutions for research and therapy. Actually, radioactive isotopes had been prepared for a number of the elements before the Atomic Energy Project. Through the use of high speed accelerators it was possible to bombard the atomic nuclei with particles traveling at a sufficiently high speed for them to penetrate the nucleus and render it radioactive. By this method several hundred radioisotopes had been prepared, but many only in microgram amounts. In the chain-reacting pile the enormous number of neutrons liberated by the fission of uranium penetrate the atomic nuclei and render the target atoms radioactive on the scale of milligrams, grams, and even kilograms of radioactive material.

You will recall that the atom consists of a nucleus which contains charged particles called protons and uncharged particles called neutrons. If a charged or an uncharged particle penetrates the nucleus it may disturb the normal balance between protons and neutrons so that the nucleus is in an unstable state. However, the nucleus tends to return to a stable state and to do so, it emits detectable particles or radiations until a normal balance between protons and neutrons once again obtains. By the use of a Geiger Muller counter or an ionization chamber it is possible to count the number of these radiations emitted and so not only determine the presence of a radioactive isotope but, in many instances, the amount of material. It is often possible to use very small amounts of material as a tracer. Thus, in a typical tracer experiment using radioactive iodine only some 4×10^{-14} grams of radioactive isotope are required.

As of this date, radioactive isotopes are finding wide applications in cancer research. An increasing number of compounds labelled with radioactive isotopes are available for research studies such as steroid hormones, carcinogenic agents, and amino acids. In using these radioactive materials a number of considerations should be borne in mind from the laboratory standpoint.

Laboratory precautions in handling radioisotopes differ with the type of radiation emitted. Beta particles are moderately damaging but are in general of short range and only superficially penetrating. Accordingly the hazard in handling isotopes emitting beta particles

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lies more with a localized overexposure in contrast to gamma-emitting radioisotopes where the hazard lies with total body irradiation rather than with localized exposure. Thus, the hands of the experimenter using beta emitters are most likely to be overexposed and lucite holders, shields, and thick walled glass containers are usually adequate for shielding. However, the area should always be monitored by the experimenter, for the more energetic beta particles have a range on the order of a meter of air. Radioactive phosphorus which is receiving wide usage in the treatment of leukemia, polycythemia, and lymphoma is a pure beta particle emitter, with a maximum energy of 1.71 m.e.v. Radioactive carbon which has been used to tag methylcholanthrene and urethane is also a pure beta emitter with an energy of only 0.145 m.e.v. Such soft radiations, as with carbon, are readily absorbed by any solid material and adequate protection against millicurie amounts may be found by using a minimum of 6 inch distance from the source with heavy rubber gloves for the protection of the hands.

Gamma rays are quite similar to X-radiations; they are less damaging than beta particles per given amount of tissue exposed but the total amount exposed is much greater because of a high degree of penetration. The interposition of material, such as lead, or distance between the worker and the source is the best protection.

To complete the picture, mention should be made of alpha particles which are highly ionizing but are of such short range in tissue that they are usually unable to penetrate the heavy layer of the skin. They are not encountered in ordinary research experiments.

A number of radioisotopes that emit both beta particles and gamma rays are being used in cancer research. Radioactive iodine has been used in research on the location and treatment of thyroid cancers. This isotope emits beta particles and gamma rays and, accordingly, careful shielding is necessary. Radioactive sodium also emits both beta particles and a highly energetic gamma ray. It has been used in research on the treatment of leukemia.

The amount of radioactive material used is of course highly important. The microcurie amounts used in tracer experiments do not require the precautions for using materials at the millicurie level.

Our knowledge of the permissible safe dose of radiation that a human being may receive in one day is based largely on animal experiments. Previous permissible daily dose has been established as 0.1 roentgen per day but will probably be lowered. By the permissible safe dose we mean the maximum amount of X or gamma radiation to which a normal individual can be exposed in the unit of time specified without immediate or long-range harmful effects. Thus, 0.1 roentgen will *not* alter the hemogram, induce mutations, or impair gonadal function.

It is important to realize that the most important step in dealing with the overexposure problem is to detect potentially harmful amounts of radiation at the laboratory instrument level. The realization of the danger from a particular substance because of the detection by instruments of the intensity of its radioactivity is much more important than the ability to carry out a careful hemogram after exposure. There are two simple devices which may be used to determine the amount of radiation to which a person has been exposed in a particular experiment, and any person handling radioactive materials should wear one of these at all times in the laboratory. The simplest is a piece of dental film contained in a badge which is developed and compared with film exposed to known amounts of radiation. Second, pocket electroscopes are of value, espe-

cially for immediate knowledge as to the amount of radiation to which an individual has been exposed at any given time.

In expressing the time during which a radioisotope retains its radioactivity, the term half-life is used, meaning the time in which one-half of the radioactive atoms disintegrate. The fact that in some instances it means thousands of years emphasizes the care that must be used to avoid ingestion accidentally or of contamination of material. Thus, one of the presently used radioactive isotopes of sodium has a half-life of 3.0 years. Contamination of a table, a floor or similar permanent equipment by spilling this material may demand extensive and expensive replacements before the laboratory can be used safely. Radioactive carbon has a half-life of 5,100 years. Thus, although its very weak energy makes the external hazard minimal, if ingested it will produce radiation exposure for a lifetime. Accordingly, it is not presently used in cancer research in human beings.

In addition to the avoidance of ingestion of radioactive material, consideration must also be given to the introduction of radioactive isotope through a laceration, and the subsequent localization of the material. Thus, radioactive strontium which, because of its metabolic similarity to calcium, has been tested in the treatment of bone tumors, has been shown by Brues to cause osteogenic sarcomas in rats because of its tendency to localize in bone.

The problem of disposal of radioactive wastes has many questions that are still unsolved. In several instances the radioisotope has such a short half-life that it is a relatively simple matter to retain the material in a lead-lined container until a majority of the atoms have disintegrated.

Since it is known that plant and animal life can concentrate the various elements, a dilution of the material with non-radiative element is often advisable.

A consideration of the carcinogenic effects of radioisotopes naturally raises the question of the incidence of cancer in patients who have received radioisotopes as a therapeutic agent. In 217 cases of leukemia receiving radiophosphorus and 94 cases of polycythemia receiving the same material, Dr. John Lawrence's statistics do not show evidence of an increased incidence of neoplasm. This series includes cases treated over a 12 year period. We have had no other evidence of increased incidence of cancer in patients receiving radioisotopes.

The sensitivity of the hematopoetic tissues, especially the leukocytes, to radiation, has resulted in widespread use of the blood count as a continuing check on possible deleterious effects of radiation. It is suggested that persons exposed to radiation should have a monthly blood picture with particular attention to total white blood count and the lymphocyte level. Studies are in progress in the laboratories of the Atomic Energy Commission and in civilian institutions under AEC support on the use of radioactive cobalt as a radiation source similar to radium.

Radioisotopes are distributed from Oak Ridge, Tenn., by the isotope distribution branch under the able leadership of Dr. Paul Aebersold. Before these materials are allotted to institutions, a careful investigation is made of the facilities and protective measures available in the laboratories. Through the field service of the Radioisotopes Branch close liaison is maintained with those laboratories using these materials so that proper protective measures are constantly in force. The record of the Commission, as well as the record of the institutions participating, emphasizes the fact that through knowledge of the materials used and constant safety precautions it is possible to carry out extensive research without jeopardizing

the health of the personnel. At present the AEC is distributing without charge radioactive phosphorus, sodium, and iodine for cancer research. As other new isotopes become important in this field it is anticipated that they will also be distributed without charge.

There is at present no cancer cure in the field of radioisotopes and we know of no cancer case that has been cured by the use of these materials. However, radioactive phosphorus is felt to be the treatment of choice in polycythemia vera, while in chronic leukemia radiophosphorus gives, in general, the same results as radiation therapy with the distinct advantage of the absence of radiation sickness. It would appear that in radioisotopes we have a tool which may prove extremely valuable in studying the genesis and growth of cancer, and intensive studies are under way on the use of radioisotopes in cancer diagnosis and cancer therapy.

A.M.A. Section Plans Symposium on Smog

In view of the lively interest aroused by poisoning from smoke or smog in such situations as that at Donora, Pa., attention is directed to a symposium on air pollution, including smoke and smog, scheduled at the annual meeting of the American Medical Association, June 8, in Atlantic City, beginning at 9 A.M. under the auspices of the A.M.A. Section on Preventive and Industrial Medicine and Public Health. Rutherford T. Johnstone, M.D., Los Angeles, is the Secretary of the Section.

Dr. Johnstone points out that in spite of a good many air pollution studies the public attention has only recently been alive to this issue since the Donora episode. The lay press has contained sensational articles which have stirred up the general public to ask their physicians and their health officers about the nature of smoke and smog.

In the panel as planned the chemical topographical, and meteorological aspects of smog will be presented by H. F. Johnstone of Urbana, Ill.; recent advances in the identification of air pollutants by J. A. Haagen-Smit of Pasadena; causes, constituents and physical effects of smog involved in specific, dramatic episodes (Donora; Meuse River Valley) by H. H. Schrenk of Bethesda; general health aspects of industrial and community smog by William Ashe, Cincinnati; approved control measures by W. C. L. Hemeon, Pittsburgh; administration of an air pollution control program by L. C. McCabe of Los Angeles; and summary and discussion of papers by Robert A. Kehoe of Cincinnati.

A joint session on air pollution under the auspices of the Subcommittee on Air Sanitation of the Committee on Research and Standards, Alexander D. Langmuir, M.D., Chairman, will be held in connection with the 77th meeting of the American Public Health Association in New York City in October.

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PHYSICIAN, HEAL THYSELF

MOST health officers today realize that a child guidance or mental hygiene clinic, staffed by psychiatric personnel, is an essential element in the public health machinery of any well organized community, alongside of its maternal and child hygiene, tuberculosis, and venereal disease clinics. Many of them understand that such a mental hygiene clinic is not—by itself—a complete answer to the problem of emotional health. The traditional health services deal with particular age groups or particular diseases and their programs are, in large measure, mutually exclusive. Not so with mental hygiene. This is perhaps the most nearly universal problem in the entire field of public health. It affects every age group, it complicates every disease condition. Therefore, the mental hygiene approach must permeate every activity of the soundly planned health department.

Our thinking along this line has been greatly stimulated by recent events in the State of California.[1] In 1945, when the State Health Department became responsible for setting up preventive mental health services, Dr. W. L. Halverson, State Health Officer, asked The Commonwealth Fund of New York for help in working out suitable plans. The Fund sent a physician with pediatric and psychiatric training to study the problem. He took the position that awareness of interpersonal relationships was the cornerstone of mental health, and on his advice the State Health Department employed, in 1946 (also with assistance from the Fund), a full-time mental health consultant who shared this belief. In his first year and a half this physician not only thrashed out basic issues with his colleagues on the state staff but demonstrated and taught the possibilities of a mental health approach to clients in local health service. In 1947, some of the men he had worked with were eager for more contact with psychiatric thinking. In response to their wish the Fund joined forces with the State Department of Health to organize an institute on mental health in public health which was held at Berkeley for the two weeks beginning July 5, 1948.[2]

The twenty-seven "students" and sixteen "teachers" who came together for this institute promptly began to talk about public health problems on an equal and informal footing. The students were all public health administrators, mostly

city and county health officers. Three of them, from outside California, represented the states where The Commonwealth Fund has been most active in support of public health: Tennessee, Mississippi, and Oklahoma. The teachers were a carefully mixed group—eight psychiatrists, three pediatricians with psychiatric training (chosen with the potentialities of the well child conference in mind), and five public health leaders to serve as interpreters and referees. There were observers from the U. S. Public Health Service, the U. S. Children's Bureau, and the Oregon State Health Department.

The plan of the institute included lectures, clinical work, and group discussion. The lectures revealed certain glimpses of psychiatric therapy—the developmental history of the personality, the nature of anxiety, the problems of authority—with some data on the epidemiology of mental diseases. The most important factor was the clinical work, conducted in the regular clinics of the health departments of Berkeley, Oakland, and Richmond where psychiatrists demonstrated, and many of the students themselves conducted, leisurely interviews with typical patients—mothers in the antepartum and well baby clinics, crippled children, tuberculosis suspects, syphilitics.

Finally, in group discussions, the whole educational process was brought to a focus. "The students and their leaders got together daily in small sections, occasionally in larger groups, and informally at evening 'bull sessions.' There was talk of alcoholism; the relations of the health officer with the newspapers; social medicine; budgetary problems in public health; what to say to the parents of a defective child; how to gauge the emotional maturity of a candidate for a job; staff parties; nursery schools; the fear of death and the question of immortality; whether psychiatrists tend to think of pleasing the patient; unmarried mothers and whether or not they should keep their children; the difficulties imposed on the health department by civil service; the case of a woman who married, against advice, a man who beat her and why women do such things; the boss as father symbol; how to train and supervise part-time physicians in the health department; what responsibility public health carries for altering cultural patterns; when an interview is therapeutic; the limitations of psychotherapy as applied to mass problems. None of the psychiatrists attempted to impose a preconceived program on the discussion, and the freedom with which men ventilated their professional and personal problems, their skepticism with respect to psychiatry, and their puzzled resentment against mental health propaganda was an indispensable part of the process by which group thinking became integrated."

The institute apparently achieved three major results. In the first place it made clear to a group of health administrators that psychiatry has much more to offer than the diagnosis and treatment of mental disease. As Geddes Smith says, "It is because some psychiatrists have learned how to create a setting in which people feel free to be themselves, and in which people can with help begin to work out their own problems, that they have something important to give to public health. This gift is not confined to psychiatrists; many people—including many health officers—have it naturally. But public health has taken small account of it even when it was instinctively practised by health workers, and the color which it gives to specific dealings with patients differs from that of ordinary health department procedure. Where dynamic psychiatry is permissive, public health is more apt to be instructive, didactic, sometimes even coercive. Its philosophy, a seasoned public health worker said at the institute is that of telling the patient what to do about something." Whereas, the psychiatric interview

("The giving of psychological support through listening") attempts to relieve and reassure, to make the patient feel at home, to give him opportunity to talk about what really troubles him.

It is obvious that this mental hygiene viewpoint is of major importance in the day-by-day activities of the health department. To quote again from Geddes Smith, the discussion of the institute "seemed to indicate agreement that respect for the human personality and some understanding of it, some feeling for people as individuals, can make everything a health department does for people more effective; that the health department, dealing with people in critical periods of their lives—childbearing, early infancy, chronic disease—has a superb opportunity to foster their mental health and so to render a truly 'preventive' service; that the health department shares with the whole community responsibility to provide facilities for the treatment of mental disorders; and that if a health department is fortunate enough to employ a well qualified psychiatrist or psychiatric social worker it is better to use him in training its own staff for their everyday jobs than in treating the mentally ill."

Finally, it seems clear that the approach emphasized at Berkeley has profound implications—not only with regard to contacts between the health department and the public, but also with respect to relationships between the staff members themselves.

The health officers at the institute were quick to realize that the same principles of approach which are effective in dealing with clinic patients carry over into staff relationships and relationships between the health department and the community. From the very first day the administrators began translating everything they heard into administrative terms. They knew that the hierarchy of the large health department creates tensions between staff workers, and that the more intimate community contacts of the small department call for the utmost skill. As soon as the principles of a good interview were brought to their attention they realized that these principles were pertinent in picking staff members and adjusting friction between them, in relieving their anxieties, even in discharging staff members gracefully. As they talked about these matters the health officers took the opportunity of ventilating many of their own characteristic anxieties: their frustation when they are caught between their own desire to do the best job they can and the niggardliness of appropriating bodies; their tensions in dealing with practising physicians; their discomfort in their relations with health educators; the uncertainties associated with work financed by federal funds; the interferences with direct action that come from pyramidal organization on the one hand and civil service on the other. They knew that if they were anxious, their associates were anxious too; and realizing that from morning to night the bulk of their work was done by and through interviewing of one sort or another, they were glad to understand better what they were doing and failing to do with this tool of relationship.

The effect of Dr. Zimmerman's early spade work in the California State Department of Public Health is well illustrated in Ann Wilson Haynes's description of the Inservice Training Program of the department presented at our Boston meeting.[3] Mental hygiene begins at home, in the staff of the health department itself; and California has shown us how the job can be attacked.

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THE AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

READERS of the JOURNAL[1] will have noted that a specialty board of Preventive Medicine and Public Health has been established, after incorporation, and with the approval of the Advisory Board on Medical Specialities and of the Council on Medical Education and Hospitals of the American Medical Association. It is now ready to operate.

The specialty board system goes back to 1917 when the Board of Ophthalmology was established. Within the succeeding three decades, 16 other specialty boards have been developed. It cannot be doubted that this movement has been a significant feature of medical education in the 20th century. It has rendered a most important service in setting standards for the improvement of medical practice and there has been continuing effort on the part of those responsible to establish a pattern of studious work and careful practice among physicians after they leave their interneship. It is reported by the deans of several outstanding medical schools that a large proportion of their graduates, in some cases as many as 90 per cent or more, are planning to complete the requirements for one or another specialty before undertaking practice. The resulting demand on residencies in clinical specialities has been a notable feature of the post-war period.

There are no doubt certain serious problems raised by this generally admirable development. It is inevitable that a major proportion of the need for medical care falls in the area of general unspecialized practice; and it is perhaps fortunate that some medical schools appreciate this fact. If medical practice in the future is to have a majority of physicians limiting their practice to a specialty, especially if these men on the whole tend to be the cream of the crop, it will be conceded that only those communities of larger size, say 25,000 and up, can expect to be equipped with physicians in a majority of the specialities. The resulting disadvantage to small town and rural community practice is manifest, and the specialty board system, by and large, is tending to make more difficult the task of getting more service out at the grass-roots.

Among the solutions offered for this dilemma we may note the concept of some of those identified with the specialty board for Internal Medicine who believe that the general practitioner of the future should be a qualified man in this specialty. Another possible solution is that all certified specialists should limit their practice to persons referred to them by other physicians, a system much more frequently followed in Great Britain than in the United States.

The specialty board program, in any case, is now well established as a national policy in the United States; and the necessity of providing for public health as a medical specialty is obvious. In the past, physicians operating as health administrators in government service have been seriously handicapped in financial status and prestige by the lack of specialty board status.

Public health physicians have need for closer links with clinical medicine and they believe that the practice of public health represents a specialty which deserves recognition with other medical specialities. They have made their case and we shall now have an opportunity to observe how the proposal works in practice.

The specialty board in Preventive Medicine and Public Health will provide a tangible measure of competence in our field. A mayor or a governor who wishes to select a health officer will now have an objective test of the training

and experience of a given physician. At its best, this Specialty Board will crystallize more sharply the qualifications of those who really are competent. It will probably result in a wider recognition in professional circles of the fact that public health is no longer an area where those who cannot make a success of other practice can find their life's work.

The work of the specialty board will be greatly facilitated by the fact that public health during the last three decades has developed the most thorough graduate course available in any of the specialities, none of which enjoys the academic recognition that has come to public health, and none of which can present an educational system which compares with the ten accredited schools of public health. The established accreditation system under A.P.H.A. auspices fits hand in glove into this picture.

The fact that public health in North America now has the benefit of a well developed system of modern examination methods also makes it more readily possible, in this field, to discriminate between the qualified and the unqualified than in any other specialty (although the specialty board for Internal Medicine has also begun to use objective type examinations). The Merit System Service of the American Public Health Association, however, during the last eight or nine years has developed about 20,000 objective questions in this field and an experience which approaches 500 examinations of public health personnel.

If this specialty board in Preventive Medicine and Public Health is to operate successfully, it will, however, require a very substantial improvement in field training areas which must compare in quality with the facilities for residency training in clinical specialities. Fortunately our Committee on Professional Education has anticipated this need through the publication of an important report on this subject.[2] It may be expected that the influence of the specialty board will have a favorable effect on these training facilities, as has been manifest in the area of hospital residencies.

It is already apparent that hundreds of younger physicians will seek to establish their qualifications in public health through the channels of this board. It is fortunate that the board has been established under auspices that include, beside the American Medical Association, those of the Canadian Public Health Association and the American Public Health Association. The board itself is off to a good start with excellent leadership.

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MENTAL HEALTH ON A GLOBAL SCALE

IT is gratifying to note that the Executive Board of the World Health Organization at its March meeting approved the first world-wide program for mental hygiene ever to be undertaken on an international scale. Along with environmental sanitation, control of cholera, tuberculosis, and venereal diseases, and promotion of maternal and child health, mental hygiene is endorsed as one of six major projects to be undertaken in 1950; and a budget of $942,550 has been recommended for the mental health program.

In view of the prominence given to mental health in the WHO Constitution,

this action does not come as a surprise. Yet it is a source of gratification that interest in mental health is no longer to be limited to pious platitudes but is to take shape in action.

The program recommended to the WHO includes the following elements:

1. The organization of the Mental Health Section of WHO so that it may assist in the collection and coördination of all the existing data on the problems and facilities for mental health work throughout the world.
2. The provision of multi-disciplined teams for investigation of mental health problems, particularly amongst rural communities. It is suggested that one of the teams should be working in conjunction with the Mother and Child Health Project of WHO, whilst another one should be coördinated with the survey work of UNESCO and FAO.
3. Research teams working on mental health in industrial communities.
4. A team investigation in the field of student mental health, carried out not only as a reconnaissance but also as a demonstration.
5. Multi-disciplined teams sent to give demonstrations of methods of survey and prophylaxis.
6. Education experiments amongst existing WHO field teams, public health administrators and mental health workers. Long and short term fellowships in the mental health field to be encouraged.
7. Demonstration project in education of the public.
8. The establishment of an expert committee on mental health working for WHO and the building up of a multi-professional team for its own mental health staff.

It is our earnest hope that the project as outlined will be approved at the second World Health Assembly to be held in Rome next month and that the necessary funds may be appropriated to carry it out. The sum allotted is less than one-fifth of the total WHO budget; and this seems modest and reasonable. It is more than time that we recognized, in actual practice—what we all know in theory—that mental and emotional problems contribute a good half of the total burden of disease and disability.

JOHN J. SIPPY

THE death of John J. Sippy on March 15, has removed one of the outstanding leaders of administrative public health.

Born at Venice, Ill., in 1879, Dr. Sippy took his medical degree at P. & S., St. Louis, in 1899. He practised medicine in Kansas for thirteen years (serving also as health officer of Sumner, Kans., from 1908 to 1913). He became epidemiologist of the Kansas State Department of Health in 1913 and held the same position with the Montana State Department from 1919 to 1922, and served as director of child welfare in that department from 1922 to 1923.

The opportunity for his real life work opened up in the latter year. San Joaquin County, Calif., had been visited by a severe epidemic of diphtheria; and its residents decided to take advantage of a half-forgotten California statute which—since 1917—had permitted the establishment of full-time district health departments.

The preliminary steps to create such a district were taken and Dr. Sippy was named as health officer. The County Board of Supervisors belatedly discovered that valuable patronage was to be snatched from their clutches and brought suit to test the constitutionality of the enabling Act—which temporarily stopped all appropriations for the support of the new department. Led by Rotary Clubs in the major cities an extraordinary uprising of citizen interest was developed. The organizations concerned raised by popular subscription the funds to carry the department for eight months (until the basic legislation received final approval);

and Dr. Sippy and his staff carried on with personal drawing accounts from this fund.

When the battle was finally won, Dr. Sippy built up in San Joaquin County the first district health unit under the California law and developed a program of such excellence that Stockton in the late 20's was a Mecca for visitors who wanted to study a sound county health machine. His patient and determined spirit was manifest in every detail of the department; and members of the staff still vividly recall his routine daily rounds which involved at least a brief contact with every member of the team.

Dr. Sippy joined the American Public Health Association in 1919 and was elected a Fellow of the Health Officers Section in 1930. He served as President of the Western Branch in 1941 and was elected President of the American Public Health Association in 1943—the first President of the Association to be drawn from the vitally essential group of district and county health officers. He represented public health at the grass-roots, and public health of a quality to inspire the admiration of the profession throughout this continent.

Credit Lines

THE COMMUNITY HEALTH COUNCIL STORY IS BEING TOLD

The Division of Public Health Education of the Nebraska State Health Department, whose Director is Nina B. Lamkin, has prepared in mimeograph form some 15 pages of questions and answers about health councils. The record is set straight at the outset by stating that the ultimate goal is more local health departments in Nebraska.

This is a homey, practical document that suggests what health needs might be found in a community, names of organizations that should be brought together in organizing a community health council, and mentions existing Nebraska examples of the types of health councils discussed. Its definition of a local health department is "an organization set up in any city, county, or district at the request of the people to give them public health protection: to help them in defining their public health problems, and in utilizing all community and state resources in doing something about them."

The Iowa State Health Department has prepared *Iowa Health Council Plan* along similar lines. This includes, besides the step by step instructions for organizing a council, a suggested constitution and a report of a survey of public health resources in Iowa made jointly by the State Federation of Women's Clubs and the Department of Health. The study concludes that there is an almost complete lack of public health services at the local level and recommends that the federation cooperate in bringing about adoption in the 1949 legislative session laws necessary to permit establishment of satisfactory health departments.

The Kansas State Health Department has put its community health council lesson in a beautiful Chinese red pamphlet that defies indifference. Nor does the material inside disappoint expectations. Its last word is that no community can afford to be without the services of a local full-time health department.

KEEPING LAW MAKERS INFORMED

The Kansas State Board of Health has prepared for the 1949 State Legislature a digest report of its activities for the biennium ending June 30, 1948. It is a very well put together report that assumes maturity and intelligence in the state legislators. Facts are given straight with a minimum of self praise. The material is illustrated with a number of graphs.

U. S. VS. BRITISH PLUMBING PRACTICES

"Plumbing in America," by F. L. Barrow, and published by His Majesty's Stationery Office, London, describes the differences in plumbing practices as seen by Mr. Barrow during a trip of several months in the United States, and as practised in Great Britain. The report gives a useful review of practices in the United States. The price is 6d.

STARTING A MEDICAL CARE PROGRAM RIGHT

It will be remembered that the City of Baltimore recently asked to have the medical care program being carried on in the rest of Maryland extended to the city. The new city program carried on by the health department is limited to recipients of public assistance. In opening this service the health department has published a medical care

pamphlet telling recipients just how the program works and what they need to do to make it most effective.

AFTER A REPORT—ACTION

The *Brown* (Esther Lucille, Ph.D.) *Report on Nursing for the Future* has been out since late summer of 1948. In January, 1949, a flock of agencies in Indiana—the State Board of Health, State Nurses' Association, the division of nursing education of the State University, the State League of Nursing Education, and the State Board of Nurse Examiners—coöperated in a three day workshop designed to answer the question as to what Indiana should plan in relation to the report. The recommendations, too detailed for analysis here, are available from Helen J. Weber, Division of Nursing Education, Indiana University, Bloomington.

THE EPIDEMIOLOGY OF SYPHILIS

The Social Hygiene Committee of the New York Tuberculosis and Health Association has made available reprints of *The Epidemiology of Syphilis.* Written by E. Gurney Clark, M.D., Chairman of the Committee on Epidemiology of the Association of Syphilis Clinics, this article appeared in the November, 1948, *Journal of Medicine.* The Chairman of the Social Hygiene Committee is Frank C. Combes, M.D., and of the Association of Syphilis Clinics, Howard Fox, M.D.

The reprint is available in limited quantities from the Social Hygiene Committee, New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16. Jacob Goldberg is the Secretary of this committee.

ANNUAL HEALTH REPORT AS NEWSPAPER ADVERTISING

The Lawrence-Wabash Health Department, with headquarters in Lawrenceville, Ill., presented its report for 1948 in the form of four advertising lay-outs headed respectively "Action for Health," "Polio—The Pearl Harbor of Public Health," "Declaration of War on Disease," and "The Atomic Bomb of Public Health."

According to the announcement of the County Board of Health, of which Roy R. Rucker is President, it was decided to select the six newspapers of the two counties in order to give a reader circulation in excess of 50,000 persons at what was said to be the same cost as the conventional report separately printed which would at best reach only a few thousand circulation. Dale E. Scholz, M.D., M.P.H., is the Director of the bi-county department.

SCHOOL DISTRICTS CONSOLIDATE

The 1947 Legislature of Illinois passed a community unit school district act which was recently upheld by the state supreme court. As a result school elections had already in the fall of 1948 reduced the 12,000 school districts in the state to 7,500 with the expectation that the number would be reduced to 3,000 by mid-1949. Fewer than 1,000 are recommended by county survey committees.

Several other states have enacted laws for the reorganization of school districts, a number of them passed by the 1949 legislative sessions. A distinguishing feature of these laws is the provision of a state commission and county committees to plan for school district reorganization and to set definite time limits within which plans must be acted upon.

ALCOHOLISM—A PUBLIC HEALTH PROBLEM

Evidence mounts that public health, and indeed medicine, now recognize that chronic alcoholism is also their province and not that of the penologist alone. The latest such evidence is the January, 1949, issue of *Health News* of the New York State Department of Health. This has an editorial on The

Problem of Alcoholism, an article on Chronic Alcoholism: A Public Health Problem, by Anton J. Carlson, M.D., and Joseph Hirsh, President and Executive Director respectively of the Research Council on Problems of Alcohol, as well as an outline of the program of the Committee on the Problems of Alcoholism of the State Medical Society by its Chairman, Milton G. Potter, M.D. It reports that 8 states have within the past 3 years established permanent programs to cope with alcoholism and that several others are expected to do so in the 1949 legislative sessions.

WHAT THE MENTAL HEALTH ACT MEANS

Printed in black, white, and restful green, *The National Mental Health Act and Your Community,* in 16 pages and a few charts, tries to tell each citizen what the Mental Health Act passed by the 80th Congress means to him and his community. The watchwords are prevention and working together. There is a foreword by Oscar Ewing, Federal Security Administrator. U. S. Gov. Ptg. Office, Washington, D. C., 10 cents.

BALTIMORE FIRST TO TELEVISE HEALTH

What is reported to have been the first health department television program was carried on in Baltimore during the past winter. In a series of weekly programs, the various aspects of disease prevention were televised. Coöperating with the City Health Department were the Medical and Chirurgical Faculty of Maryland and the State Medical Society.

30 YEARS OF CHILD HEALTH IN NEW JERSEY

Thirty Years Progress in Maternal and Child Health, by Julius Levy, M.D., Chief of the Division of Maternal and Child Health, New Jersey State Health Department, has been reprinted from the *New Jersey Public Health News.* It summarizes the not inconsiderable progress made in saving infants in that state since 1919 when the Maternal and Child Health Division was started. The infant mortality rate, for example, was 84.7 in 1919, 28 in 1947. Available from New Jersey State Department of Health, Trenton.

A NEW HEALTH COUNCIL PUBLICATION

Health: Everybody's Business began publication as the monthly organ of the Health Council of Greater New York in February. In four pages of mimeographing it had capsule stones of health and Health Council News of New York City. Health Council of Greater New York, 130 East 22d St., New York 10.

SCHOOL HEARING CONSERVATION PROGRAM

During most of the school year 1947–1948, the Illinois Commission for Handicapped Children, through its Advisory Committee on Hearing Conservation and Rehabilitation, carried on a Hearing Conservation Program in the public and parochial schools of Will County. This county of about 115,000 population was chosen because it has both urban and rural schools and has an organized full-time county health department. This was in effect a pilot project to develop experience for a hearing conservation program throughout the state.

In the program more than 20,000 children in 188 schools were given audiograms. About 8 per cent were referred for otological examination.

The report of this project has been printed by the Illinois Commission for Handicapped Children, 160 North La Salle St., Chicago 1, from which it is presumably available.

NATIONAL HEALTH COUNCIL DIRECTORY

The National Health Council recently issued the 1949 directory of its 23 member organizations. Not only does it

have excellent summaries of the goals, programs, and services of each of the 23 agencies, but also a brief historical sketch of the Council itself together with an outline of its purposes and present programs. "The aim of the Council," says the brochure, "is the strengthening of the public health movement, both official and unofficial, through common planning and action of its members and through development of widespread citizen participation in and support for measures that will help the individual maintain maximum mental and physical health." Perhaps that is another way of saying, "Lets get on with the goals on which we are in common agreement."

National Health Council, 1790 Broadway, New York 19. Single copies, 25 cents; 25–49 copies, 20 cents each; 50 or more copies, 15 cents each.

LIONS SHED LIGHT ON A SCHOOL

The Lion's Club of New Kensington, Pa., found a dramatic and highly practical way of carrying out its national program of aiding the blind and conserving the sight of the young. About two years ago it underwrote the cost of relighting one classroom of the New Kensington High School. The installation of fluorescent and louvered fixtures raised the lighting level and provided comfortable, glare-free conditions throughout the room.

After a year's experience, school authorities and parents saw the sense and economy of making seeing easier in the classroom, and the entire school lighting has been modernized. Another example of a voluntary agency showing the way.

METROPOLITAN LIFE STATISTICAL BULLETIN AVAILABLE TO HEALTH WORKERS

Credit Lines, reviewing the contents of the *Bulletin* for the last year, notes the pertinence of the topics discussed for health departments and voluntary agencies and points out the utility of the month-by-month record of mortality experience among the Metropolitan's millions of policy holders as a readily available base line against which local observations can be checked. No other summary of mortality is available for a large group so promptly.

Among the topics important to the health professions in the last volume of the *Bulletin* may be mentioned observations on regional population growth, the marked decline in fatal accidents among women, conserving the life and health of preschool children, health conditions in Europe, malaria being wiped out, high accident death toll among preschool children, smallpox almost eradicated, on the confidential reporting of causes of death, improvement in cancer mortality among women, further progress in longevity expected, and on making maternity still safer.

The *Bulletin* is available for free distribution from the Metropolitan Life Insurance Co., 1 Madison Ave., New York, N. Y.

OCCASIONALLY SCREAMING DOES IT

The first step in overcoming one's faults is to recognize them, it has been said. If so, Arizona is already started on the road to lower infant mortality and tuberculosis death rates, better cess pools and garbage disposal, and more extensive pasteurization of milk.

In the best scare headline tradition the *Arizona Times* of Phoenix for two consecutive days at the end of 1948 carried a number of articles telling what is wrong with the health picture of Arizona—the second highest infant death rate of any state in the union, the highest tuberculosis death rate (called the white plague of Arizona), an undulant fever incidence rate of as high as 5.8 per cent, water contamination by cess pools widespread, and garbage disposal nearly everywhere unsanitary.

That a state, which, as the paper says, bases its bid for tourists and winter

visitors largely upon its health-giving climate, should itself expose all these health hazards is to be commended. It should be noted, further, that Phoenix is not cited among examples of certain good conditions as Tucson and one or two other localities are.

The pay-off: The 1947 state legislature made a niggardly appropriation for the state health department in reply to the Governor's vigorous message demanding an appropriation adequate to meet the challenge. Reprints of the Phoenix articles have been circulated to all members of the 1949 legislature with the message, as it were, pigeonhole similar legislation this year, if you dare!

NEVADA NEWSMONGER BACK

The Public Health Nursing Division of the Nevada State Health Department used to have a publication called "Newsmonger." For 6 war and postwar years it fell by the wayside. As of February, 1949, it was revived as a quarterly and renumbered Vol. 1, No. 1. Its stated purpose is "to help the field nurses to maintain contact with each other and with the nursing programs in various stages of development in the various counties" and "to give a clearer picture of the functions and activities of the other divisions of the state health department." It also will give the state health officer opportunity "to express his own philosophy in regard to ways of adapting public health nursing programs to local facilities and circumstances."

CITY NOW PROVIDES BABIES' MILK

An evolutionary process begun in Baltimore in 1884 has now reached its goal in that the Baltimore Health Department has absorbed completely the work of the Babies Milk Fund Association of that city.

The association grew out of a summer hospital for babies opened in 1884. Formally incorporated in 1906, it had already several years before opened its first stations to provide milk, medical examination, and nursing instruction. In 1938, when the plan was made for gradual transfer to the health department, more than 13,000 babies were under care at 40 weekly clinic sessions in 28 stations.

In 1919 the health department established the first of its similar clinics and in January, 1949, after it took over the last of the Babies Fund Clinics, it was serving more than 20,000 infants in 81 weekly sessions at 42 well baby stations scattered throughout the city.

Two things are particularly notable for other agencies going through a similar evolutionary process:

a. The voluntary agency pioneered in showing the need and ways in which it could be met, but did not develop a "vested interest" in the service.

b. The transition from voluntary to official sponsorship was planned and gradual enough to avoid disruption of service.

REPORT ON "TAKE A TEST"

For those who visited and stayed to "Take a Test" in the Merit System booth at the A.P.H.A. Annual Meeting in Boston a complete report of that experience is now available. It includes the results of the tests, a set of the tests themselves, and a statistical analysis of the scores and questions. Six tests were offered. Some persons took more than one test, a few answered all the tests, and, in all, nearly 500 persons participated in the projects, or more than 10 per cent of those registered at the annual meeting.

More persons chose to test themselves in Facts, Foibles and Fallacies (a test of common misconceptions in the field of health) than in any other one field. The most difficult test, with 169 persons answering, was Grass Roots and Ivory Towers (Administration). When scores are broken down into age groups, years of experience, education, type of occupation, etc., for each test, there are

challenging revelations. For full appreciation of the results the report must be read in detail.

There are just as many interesting findings in the analysis of the items as in the differences described in the average scores obtained by the various categories of examinees. To disclose just one reassuring fact: 84 per cent of those answering the question know that it is now thought that physical hardships alone do not of themselves induce colds unless an infecting agent is present.

It may be a little disturbing to read that only 41 per cent of those taking the test with this question in it, knew that Samuel J. Crumbine, M.D., has recently written a book dealing with the early days of public health in this country. Other arresting findings await study.

The report as a whole offers a good example of the processes of testing adopted by the Merit System Service. Copies may be ordered from Merit System Service, American Public Health Association, 1790 Broadway, New York 19. $1.00.

PREVIEW OF CHILD HEALTH STUDY

With a very attractive pamphlet—*The Road Ahead for Better Child Health*—the American Academy of Pediatrics has whetted the appetites of those who await the full report of its monumental study of child health services. Published by the Commonwealth Fund, this has just come off the press and is ready for distribution.

The pamphlet picks up and dramatizes in charts or pictures some of the startling facts found by the study. The picture of the sturdy youngster trudging doggedly down the road of his future is not the least of the pamphlet's appeal. Available from the Committee for the Improvement of Child Health, 1740 Bainbridge Street, Philadelphia 46.

A PATIENT'S HISTORY FORM

Oliver E. Byrd, M.D., Ed.D., known to health workers for his annual *Health Instruction Year Book,* has prepared a *Patient's Self-History Form* for the use of physicians and hospital administrators. Designed as a time saver for the doctor, it is the patient's own inventory of his health history as he sees it.

The inventory is brief but inclusive, 8 pages in all. The patients answer questions under five main headings: family health, social history, hospitalization, work experience, and military experience.

The *Self-History Form* is published by the Stanford University Press, Stanford, Calif., from which it is presumably available.

ANNUAL REPORTS

Chicago's Human Responsibilities and How They Are Met is the title of the 33rd annual report of the Chicago Council of Social Agencies. Community responsibility is its theme carried out in photographs, charts, and a high quality of production. Chicago Council of Social Agencies, 123 West Madison St., Chicago 2.

Lorain County (Ohio) General Health District, 29th Annual Report. In accordance with what appears to be a current trend, this annual report is in the form of a weekly country newspaper — advertisements and all. It should be said first that this health district is made up of the rural areas of Lorain County, thus serving about 45,000 of the county's 112,000 persons. The remainder are served by two city health districts, Lorain and Elyria, each with part-time health officers. The county district report shows a well balanced program, a training program linked to schools of public health and to overseas visitors, and a well districted nursing program. Its articles are newsy in the journalistic tradition and its ad-

vertisements are uniquely thought provoking. For example, "Wanted: Experienced bartender who will coöperate with health department inspectors."

The financial figures show an expenditure for the basic budget (excluding the training program) of a little less than $1 per capita in 1948. Including the budget of the training center, met largely by Kellogg Foundation funds, expenditures were approximately $1.33 per capita.

The National Committee for Education on Alcoholism reprints its annual report from the December, 1948, *Quarterly Journal of Studies on Alcohol.* Perhaps its most revealing statistic is that in one year, the fourth of the committee's existence, local affiliated committees increased from 25 to 39, with 43 additional ones in formation (5 of these and 2 others not then contemplated have been formed since the report came out). These local committees are located in 27 states, the District of Columbia, Canada, and Mexico.

This report describes fully the work of the National Committee and provides thumbnail sketches of each of the local committees. National Committee for Education on Alcoholism, 2 East 103rd St., New York 29.

SOCIAL WORK YEAR BOOK TO BE CONTINUED

The Social Work Year Book, of which the 10th Edition, 1949, has recently been published by the Russell Sage Foundation, is to be carried on in subsequent editions under the auspices of the American Association of Social Workers. Margaret B. Hodges who edited the 10th Edition will continue as Editor of the *Year Book.*

WORTH ACQUIRING

Safer Ways in Nursing to Protect Against Tuberculosis is a guide for precautions in the care of tuberculosis patients. It was prepared for the National Tuberculosis Association by the Joint Tuberculosis Nursing Advisory Service. It should be particularly valuable for directors of nursing services in general hospitals, sanatoria and other voluntary and official public health agencies. Available from state and local tuberculosis associations.

Rheumatic Fever and the School Child is reprinted from September, 1948, *Pediatrics,* the journal of the American Academy of Pediatrics. It is a statement to guide school health authorities, prepared jointly by the Committees on School Health and Rheumatic Fever of the Academy of Pediatrics. Reprints are not available but there is blanket permission for its reproduction. *Pediatrics* office is at 325 N. Euclid Avenue, St. Louis 8, Mo.

Program Package for Home Safety is said to be for the doer communities who want an answer to the home safety problem. It is a guide kit for the planning and carrying out of a safety program by a community home safety program. It has ideas for a sample club program, news releases, radio talks, exhibits, surveys, etc. The kit sells for $1 or $2, including a year's subscription to the bi-monthly news bulletin and the *Home Safety Review.* National Safety Council, 20 N. Wacker Drive, Chicago.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Dentistry in Public Health—*Edited by Walter J. Pelton and Jacob M. Wisan. Philadelphia: Saunders,* 1949. 352 pp. Price, $5.50.

In addition to their own contributions to *Dentistry in Public Health,* the editors of this long needed and long awaited volume have evinced a high caliber of editorship in numerous ways. Two of these are particularly noteworthy; first, the excellence of their selection of contributors and, second, the orderly fashion in which the material is arranged.

Even those who may feel that some other person might have covered better an assigned phase of dental health will admit that selected contributors rank high in any list to which the editors might have turned. Not only their names, but the excellence of their contributions give evidence of the care exercised in their selection.

The purpose of the book is probably best attested by the uniquely logical order in which the material is presented. Sequentially it carries public dental health from an initial sociological "setting" through all, or very nearly all, of its phases and ramifications. Hence, as a textbook for undergraduate dental students and dentists novitiates in the field of public health, or as a ready reference for the dental profession and public health personnel, it offers an amazing amount of data in a logical order.

Many accustomed to thinking of dental health programs as consisting of examinations and, possibly limited corrective care of the teeth, are apt to be amazed at the ramifications and intricacies disclosed on the problem in this book. To such readers the book should prove informative and interesting. However, as chapters such as those on Biometrics, Surveys, etc., will attest, the book is not meant for casual reading.

The bibliographical references give additional value to the book, as does its comprehensive index. Several noted errors in dates and typography are not sufficiently important to detract from an overall excellence.

RICHARD C. LEONARD

Understand Your Child — Ages 6 to 12—*By Clara Lambert. New York: Public Affairs Committee, Inc.,* 1948. No. 144. 32 pp., Price, 20 cents.

We have long needed this illustrated 32 page pamphlet, which was written primarily for parents of children from 6 to 12 years of age, the so-called "forgotten years of childhood." The author, for 12 years Director of Teacher Education at the Play School Association, shows real understanding and describes with charm and humor the behavior which is "six-year oldness," "seven-year-oldness," and so on. She has described the characteristic behavior and the "pack of worries" carried by normal children at 5 age levels, including 6, 7, 8, 9, and 10 to 12 years.

By describing the behavior and problems of normal children, the tensions and worries of parents may be relieved because of their understanding and willingness to accept children as they are. "Some Hints for Parents" are included with the advice that there is no rule of thumb to follow.

There is a place for this pamphlet in the school program, in parents' study groups, in the hands of the grade school

teacher, and public health nurse, as well as meeting individual parent needs.

RUTH J. RAATTAMA

The Story of Blood—*By John H. Glynn. New York: A. A. Wyn, Inc.,* 1948. 285 pp. Price, $3.00.

Dr. Glynn has used the central theme of the blood to provide a thumbnail sketch of many aspects of medicine and human biology. With the familiar device of tracing the main lines of thought which have resulted in modern concepts, he manages to convey to the layman a considerable amount of information on subjects ranging from abscesses to white counts, from arteriosclerosis to the effects of worry, from the adrenal glands to vitamins. In barely 60,000 words a surprising amount of accurate knowledge is clearly and simply presented. The approach is reminiscent of Paul de Kruif, minus the exuberance and hyperdramatics. In a more ideal society we might hope that the facts given by Glynn would be taught in every high school; as it is, we must hope that books like this will reach a wide audience.

ANCEL KEYS

Textbook of Attendant or Practical Nursing—*By Katherine Shepard (3rd ed.). New York: Macmillan,* 1948. 506 pp. Price, $4.25.

This is the third edition of a time-tested textbook originally published in 1935. Its material has been drawn from the experience of many years of teaching attendant nurses in the Household Nursing Association of Boston, enriched by new chapters on the care of the well child, the aged, the helpless and chronically ill patient. The revision has taken into consideration the Analysis of Practical Nursing issued under the auspices of the Vocational Education Division of the Federal Security Administration and is in accord with the curriculum prepared by the Approving Authority of the Massachusetts Board of Registration in Nursing. The book, therefore, represents authoritative statements in this field.

The character of the material in this textbook may best be described as sensible, practical, and simple. Its scope is definitely limited to the average capacity of a non-professional, non-scientifically-prepared individual who is learning to be an assistant to a professional nurse or to be in charge of those definitely not in need of professional nursing care or supervision. Special pains have been taken to include procedures of use in homes and hospitals and to adapt the material through simple language and familiar examples to the elementary *but skilled* level of nursing expected of the attendant.

All in all, instructors of attendant and practical nurses will find this a serviceable basic textbook on which to build their teaching. There will be need for reference to considerable recent supplementary reading for students in nearly all of the subjects presented because there is only one brief list of reading suggestions for the student. Perhaps this is as well, since it is difficult to keep lists of health education and visual aid materials up-to-date.

DOROTHY DEMING

Irregular Discharge—The Problem of Hospitalization of the Tuberculous. *V. A. Pamphlet 10–27 Washington: Veterans Administration,* 1948. 64 pp. Price, S.20.

This is a penetrating inquiry into the perplexing problem of irregular discharge among tuberculous patients in all V.A. and "Non-V.A." hospitals in which veterans were housed during the month of July, 1947 (irregular discharge is defined as any discharge of a patient from a hospital without professional medical sanction).

The study comprises: analysis of incidence of irregular discharge; analysis of basic causes of irregular discharge,

including components of social and psychological significance; summary analyses of earlier studies; and well considered recommendations for preventive measures based on findings.

The approach is unique in comparison to previous studies in that (1) patients were interviewed not earlier than three months after discharge (October, 1947–December, 1947), when reason was more likely to replace emotion; (2) interviews were made by experienced personnel "who would have no reason to regard the irregular discharge as a reflection upon their professional competence." Furthermore, since the Veterans Administration constitutes the largest single hospital system in the United States, there was a greater opportunity for validity of comparison among hospitals over a wide area than could otherwise be obtained.

The study is well annotated with supporting bibliography. A scientific document of distinct value, it should prove of interest to anyone concerned with tuberculosis control.

ROBERT W. OSBORN

Manual for Medical Records Librarians—*By Edna K. Huffman. (2nd rev.) Chicago: Physician's Record,* 1948. 357 pp. Price, $4.50.

The second edition of a popular book first published in 1941 has been revised. The material is well arranged and concisely written. Two new chapters on Interdepartmental Relationship and Group Studies have been added. The chapter on Organization and Management has been expanded and includes discussions of the Relationship of Medical Record Librarians to the Administrator, Work Plan, Chart of Organization, Job Analysis and Procedure Manual. The section of Microfilming and Punched Card Methods of Indexing and Cross-Indexing have been rewritten and a good topic on Medical Illustration Index has been added. There is a greatly enlarged reference of medical terminology — stems, prefixes, suffixes, abbreviations, homonyms, drug and hospital terms. A selected bibliography of medical records literature 1929–1946 is appended. A good index concludes the book.

The vast experience of the author in the medical record librarian field lends validity to this volume. It is a book that is recommended to all who are interested in elevating the standards of medical records. MAUDE MARIE HOLMES

Medical Writing—*By Morris Fishbein. (2nd ed.) Philadelphia: Blakiston,* 1948. 292 pp. Price, $4.00.

This second edition of this American classic on the writing of medical manuscripts is to be commended to all and especially to those who are beginning to write papers. This very readable book includes such important matters as style, construction of the manuscript, bibliographic material, illustrations, tables and charts, proofreading, indexing, and abbreviations of names and periodicals.

REGINALD M. ATWATER

Progress Report of the Chicago Venereal Disease Control Program —*July 1, 1943 to October 31, 1947. Chicago: Chicago Board of Health.*

This 41 page, loose-leaf, glossy paper pamphlet may fairly be described as a promotional medium of a type which is common in the commercial field but of comparatively recent vogue in public health. If a report to the stockholders of the corporation is a sound investment, then this factual accounting to Chicago's citizens should promote confidence and understanding of the city's venereal disease control program.

The section of this report devoted to the central registry describes the means by which the administrative center managed the voluminous correspondence involved in handling as many as 12,821 VD reports in 1944, as well as epidemio-

logic reports and follow-up letters to persons suspected of venereal disease and those who had been treated, reaching a peak of 13,788 letters in a 12 month period in 1946 and 1947.

The report of the epidemiology section describes the evolution of the contact-tracing methods. Because of the nature of this report, there is no detailed description of the organization of patient-interviewing and contact tracing, which were carried out by separate units of the VD division. Emphasis is laid upon the results of the use of the telegram to persuade suspected persons to *come into the clinics.*

In the clinic, intensive treatment center and laboratory sections, the statistical data which document the great volume of work done in Chicago during this period are presented so simply as to permit understanding without special knowledge of the program.

The record of the education section, particularly in the 45 day public education program in 1947, is particularly inspiring. A great number of educational units was distributed. The fact that 54 per cent of almost 10,000 "observations" made during the campaign were volunteer patients seems to demonstrate the value of the methods utilized.

There are four cuts and four pages of statistical charts which tend to enliven rather than burden this report. Though not a suitable source of detailed statistical material, as health department reports tend to be, the results in terms of public support of the Chicago VD program should be considerable.

JAMES H. LADE

Symposia on Nutrition, Volume I, Nutritional Anemia—*Robert Gould Research Foundation, Inc., Cincinnati,* 1948. 194 pp. Cloth.

This volume is made up of a series of eleven papers prepared for a Symposium on Nutritional Anemia. The symposium was organized by the Robert Gould Foundation and was held in Cincinnati in October, 1947, under the auspices of the College of Medicine of the University of Cincinnati.

The papers deal with different aspects of nutritional anemias, including relationships of folic acid, iron, copper, vitamin B complex, and vitamin C, to these anemias in infants, children, and adults. The presentations are correlated in such a manner that chemical, physiological, and clinical phases of nutritional anemias are stressed.

This collection of papers is a valuable addition to the literature on nutritional anemias, representing much original research on the part of the authors and their colleagues. This symposium will, no doubt, help to stimulate a better understanding among workers in this and related fields. The book was published August 15, 1948. It is distributed without cost to individuals and organizations interested in nutrition problems.

WALTER WILKINS

Convalescent Care for Children—*By Kathleen Allen, Director of Study. Chicago: National Society for Crippled Children and Adults,* 1947. 158 pp. Price is not reported.

In 1942 the National Society for Crippled Children and Adults published a *Directory of Hospitals and Institutions for Chippled Children.* Recognizing the fragmentary nature of information on convalescent services for children, and in accordance with a broad interpretation of the Society's purposes, it initiated a study of such services in 1944. A committee headed by A. L. Van Horn, M.D., then Assistant Director of the Division of Health Services, U. S. Children's Bureau, supervised the study.

The report includes detailed plans, including architects' drawings, for convalescent homes; a selected bibliography; a list of homes by states; a list

of state services for crippled children, and a list of the state member societies of the National Society. This is an excellent source book of information on convalescence for children.

MARTHA LUGINBUHL

National Conference on Undergraduate Professional Preparation in Health Education, Physical Education and Recreation — *May 16–27, 1948, Jackson's Mill, W. Va. Chicago: Athletic Institute,* 1948. 40 pp. Price, $1.00.

This was a national conference sponsored by nine national associations. The report of the conference includes the responsibilities of the colleges and universities for the preparation of teachers and leaders in health education, physical education and recreation. The conference prepared a special report which was published by The Athletic Institute and distributed by them at cost.

The *general education* that all persons attending college should have to become good citizens was outlined. The report also specified the *general professional education* needed by all teachers. The demand for teachers and leaders in these fields was also pointed out.

The major part of the report is devoted to the special professional preparation needed by teachers in health education, in physical education, and in recreation.

The functions of health teachers in the instructional program, in healthful school living, and in health services, are presented to guide professional educational institutions in the preparation of teachers and leaders so that they will be able better to meet the needs of children and youth.

FRANK S. STAFFORD

Survey Report, Department of Health, Pittsburgh, Pa. *Washington: Public Health Service, Federal Security Agency,* September, 1948. 385 pp.

The thorough study of which this is the report can be of inestimable value in obtaining more and better public health for citizens of Pittsburgh. An invitation to appraise the official health activities and make recommendations for their improvement had come from Mayor Lawrence and Dr. Norris W. Vaux, Secretary of Health of Pennsylvania. Thirteen committees of citizens, working in as many aspects of Pittsburgh's public health, reviewed the findings, and discussed the recommendations. The study was closely allied with the Federation of Social Agencies.

While the importance of health services in neighboring communities and in other agencies is fully recognized, in general the report necessarily covers the health facilities of the Pittsburgh Department of Health. The survey was made under the personal direction and supervision of Dr. Erval R. Coffey and 18 physicians, nurses, engineers, health educators, statisticians and personnel and administrative experts also participated. The Children's Bureau was responsible for the Maternal and Child Health chapter.

The usual outline for each chapter is a brief discussion of principles, the critical report of the program in Pittsburgh and recommendations for improvement. The summary of recommendations contains eight items suggesting a simplified organization, an advisory council, the active application of good personnel practices, a codification of the laws, the development of a decentralized program, coördination with other communities and agencies, and adequate funds. The chapters, of course, contain excellent and detailed consideration of each program. The chapter on mental health is a welcome addition to public health studies and is particularly well prepared.

Pittsburgh's commendable progress is well recorded in the report and substantial acceleration has already been achieved.

ROSCOE P. KANDLE

Food Plant Sanitation—*By Milton E. Parker. New York: McGraw-Hill,* 1948. 447 pp. illus. Price, $6.00.

This volume, one of a series in food technology, presents the specialized application of the principles and practices of sanitation to the food processing field. It undertakes to provide answers to some of the problems developed by the rather severe impact of the revised Food, Drug, and Cosmetic Act on a previously indifferent food industry. The philosophy and the related managerial aspects of food plant sanitation are set forth with commendable clarity. The chapter on rodent control is the least satisfactory, but two chapters on Fungicides, Germicides, and Sanitizers, and on Effective Detergency are extremely useful. For the many without training in the field of sanitation who are being forced into responsibilities for food plant sanitation programs, Professor Parker's book supplies much of the needed information, and it should be on the reference shelf of every sanitarian.

J. LLOYD BARRON

Dairy Manufacturing Processes—*By E. L. Fouts and T. R. Freeman. New York: Wiley,* 1948. 237 pp. Price, $3.50.

This book is designed basically to give the dairy plant operator and his employees practical information on the processing of milk and the manufacture of related products. The constituents of ice cream and the formulation of them are discussed in a most useful manner. Processing problems involving market milk, chocolate milk drinks, cultured buttermilk, and homogenized milk are covered. Butter making, soft cheese manufacture, and the more commonly applied tests for dairy products are included in the text.

Under each classification of product the authors have organized and arranged their material alphabetically for ready and easy reference. The book is very practical in content, avoids discussions of theory and should serve as a valuable and useful handbook for those engaged in the several phases of dairy products manufacture.

HAROLD S. ADAMS

Handbook of Dental Practice—*Edited by Louis I. Grossman. Philadelphia: Lippincott,* 1948. 417 pp. Price, $12.00.

This is an interesting and well balanced reference book on the most modern methods of the practice of dentistry. Dr. Grossman has assembled articles by some of the foremost practitioners and teachers in the field of dentistry, and has divided the *Handbook* into two parts. The first part covers diagnosis and treatment, with chapters on prevention and control of dental caries, roentgenologic interpretation, orthodontics, periodontics, endodontics, diseases of the mouth, prescription writing, anesthesia, and exodontics. The second part covers restorative dentistry, with chapters on gold inlay, amalgam, and silicate restorations, ceramic restorations, pedodontics, crown and bridge restorations, and partial and complete dentures.

It may be seen from the above listing of chapters that there is no specific section on public health dentistry and its problems. However, the first two chapters, The Prevention of Dental Caries and Control of Dental Caries, deal with the present status of prevention and control of caries from the community standpoint so that the subject has not been entirely neglected.

The Handbook is intended primarily for the practising dentist. Its object is to give him concise description of the various technics used in dental practice and an understanding of dental disease and its treatment. The reader will do well to supplement the practical details described by reference to more complete texts where necessary.

WILLIAM F. LEONARD

Technique of Treatment for the Cerebral Palsy Child—*By Paula F. Egel. St. Louis: Mosby,* 1948. 203 pp. Price, $3.50.

This able book is a valuable addition for technicians who are engaged in this challenging but as yet pioneer field of endeavor. In the care and treatment of cerebral palsy there is no unanimity of agreement on clearly defined standards and it is well to have texts giving different approaches to this problem. Miss Egel's handbook, designed primarily for technicians who carry out treatment for cerebral palsy patients under qualified physicians, fills a need as a reference for the expanding corps of trained persons working with the cerebral palsy child. The treatments outlined in the book are based on those prescribed by Dr. Winthrop M. Phelps, an outstanding authority in the field of cerebral palsy, under whom the author worked and gained invaluable knowledge which is now made available to others similarly engaged. The author's work has been limited almost exclusively to cerebral palsy children, and she possesses first-hand knowledge of the problems of those in special institutions for rehabilitation as well as those cared for at home.

The treatments as outlined in the text for the various types of cerebral palsy are presented in an orderly fashion, with an excellent summary at the end of each chapter, making the book especially valuable to those of limited experience who are encountering problems for the first time. The text outlines fifteen modalities by Dr. Phelps used in treating the different types. The exercises for conditioned motion described in the text are timed to rhymes and music and are accompanied by numerous sketches for clarification of these procedures. This section is of service to mothers and others with practical experience in the field but who are in need of guidance.

Finally the book contains an excellent chapter on equipment and apparatus which makes it a valuable guide to those responsible for organizing and developing a center for cerebral palsy children. The appendix gives a splendid account of the physical organization of the Cerebral Palsy Department in the Buffalo Children's Hospital and discusses results obtained and outlines the place of parent groups in the overall program.

The book is recommended as a valuable guide for technicians who work with cerebral palsy children.

HARRY B. SMITH

Pediatrics and the Emotional Needs of the Child—*By Helen L. Witmer, Editor. New York: The Commonwealth Fund,* 1948. 180 pp. Price, $1.50.

This booklet describes what took place during a three day conference when a group of pediatricians (most of these also administrators and teachers), child psychiatrists, social workers, and the medical staff of the Commonwealth Fund discussed the incorporation of mental health principles and knowledge into the teaching and practice of pediatrics. With the exception of four outstanding lectures on the general topic of "What have we learned about emotional growth and development?" which opened the conference, the remainder of the material is presented as an almost verbatim discussion by the participants. The discussion centered around the topics of mental health in pediatric practice, the training of medical students and pediatricians, and hospital practice and research. The book presents not only a wealth of information relative to these subjects not found in any other literature, but because this information is largely the result of personal experiences of the participants, described in their own words, something else is portrayed. The reader feels himself a part of the dynamic group experience that in the three days encompassed curiosity,

difference of opinion, resistance, identity of purpose and concept, and clearer delineation of the problems still to be solved. The book should be indispensable to teachers of medicine and nursing, directors of maternal and child health programs, and valuable to practising physicians. KENT A. ZIMMERMAN

Childhood Mortality from Rheumatic Fever and Heart Diseases—*By George Wolff. Washington: Federal Security Agency, Social Security Administration, Children's Bureau. Publication 322,* 1948. 63 pp. Price, $.25.

This study of differential mortality covers all of the states and is based on data for a three year period so as to reduce chance fluctuation.

Principal findings may be briefly summarized: (1) If one disregards accidents, rheumatic fever and heart diseases play an increasing part among the leading causes of death in children of school age and youth, particularly in the white population (tuberculosis is still a more important cause for the non-white group); (2) The non-white children show in all age groups higher mortality rates than the white children throughout the states, with few exceptions in the mountain division; (3) Sex differences are not important except in the group of adolescents from 15 to 19 years of age. At this age the white boys show higher rates than the non-white boys.

This is an excellent example of a well focused study which deserves the attention of those concerned with child hygiene and with epidemiology.

REGINALD M. ATWATER

Textbook of Public Health—*By W. M. Frazer and C. O. Stallybrass. (12th ed.) Baltimore: Williams & Wilkins,* 1948. 571 pp. Price, $6.50.

This fine standard *Textbook of Public Health* (formerly Hope and Stallybrass) has now reached its twelfth edition. The book covers the ground both for the Certificate and the Diploma in Public Health in Great Britain and is especially designed for students of that nation. It contains a great deal of splendid material that is of general utility for all public health workers throughout the world.

The text emphasizes the administrative control of environmental factors, and their relationship to health protection. It has a fine section on epidemiology and an excellent chapter on vital statistics. Housing and town planning, hospital administration, social services, and port health administration are all given due emphasis. All the standard functional divisions of the health service, such as contagious disease control, control of venereal diseases and of tuberculosis; maternity and child welfare, school medical services, mental hygiene, etc., are discussed adequately. There is also a short but excellent chapter on genetics.

The text, we believe, should be on the shelves of all public health administrators as an excellent reference, and it is useful, as well, to teachers of medical students in the field of preventive medicine. W. G. SMILLIE

Viral and Rickettsial Infections of Man—*Edited by Thomas M. Rivers. Philadelphia: Lippincott,* 1948. 587 pp. Price, $5.00.

The appearance of this excellent book is a milestone in medical bibliography emphasizing, as its editor indicates, the stabilization of knowledge concerning the problem which has been acquired as work in the field has progressed. It is the first in the United States which has attempted to bring into one volume the large body of knowledge which has accumulated concerning viral and rickettsial infections. The book is directed primarily toward practising physicians and medical students rather than to those intensively trained in the technical

aspects of virus studies. There are 37 chapters by 27 authors. The first 5 chapters lay a foundation for subsequent treatment of the individual diseases by presenting first a general statement of current concepts of infection by these agents; this is followed by general chapters concerning technics especially applied in their study—physico-chemical, serologic, the use of chick embryos, tissue culture. The remaining chapters consider practically all the infections of man in which viruses and rickettsiae are implicated. The diseases are discussed in a rather uniform manner comprising history, clinical and pathologic pictures, experimental aspects of study and the character of the agent, diagnosis, epidemiology, and treatment. This last section takes little space.

Rather than following personal bents, the authors have achieved a good objective balance and, consequently, the book is of great value to students, clinicians, or investigators. To those in public health it serves to emphasize the practical desirability of an expanding participation by health departments and their laboratories in the study of the viral and rickettsial diseases.

Bibliographies are well chosen and the index is quite adequate. The price, owing to an effective subsidy, is also remarkably attractive.

THOMAS FRANCIS, JR.

Studies in Psychosomatic Medicine. An Approach to the Cause and Treatment of Vegetative Functions —*Edited by Franz Alexander and Thomas Morton French. New York: Ronald Press,* 1948. 568 pp. Price, $7.50.

This book consists of a collection of thirty-four papers which were written by the staff of the Chicago Institute for Psychoanalysis and which deals with the emotional factors involved in disturbances of the various vegetative functions.

The first part is concerned with general principles. The attempt to single out certain diseases as psychosomatic is considered erroneous. Rather, the expression "psychosomatic" is used as a term for that approach in medicine which involves "simultaneous study and treatment of psychological and somatic functions in their mutual interrelation." The concept that organic diseases may develop as the end result of emotional disturbances is discussed.

There are chapters on the functions of the hypothalamus and the physiological effects of psychoanalytic therapy. Later papers deal with particular systems. Several give summaries of the analyses on which conclusions are based. There is a laudable reticence to regard pioneer research as conclusive. The most disappointing thing about the volume is that many papers were written a decade ago, and one wonders whether the years have confirmed or changed their conclusions.

In general, the book is highly recommended to all physicians, public health workers, and those engaged in programs for medical care. The subject is important, the approach scientific, and the exposition clear. WILLIAM A. DAVIS

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADMINISTRATIVE REQUIREMENTS FOR BUILDING CODES. American Municipal Association Building Officials' Conference of America, Inc. New York: American Standards Association. 15 pp. Price, $.50.

AMERICAN STANDARD PLUMBING CODE. Spon-

sored by the American Public Health Association and American Society of Mechanical Engineers, 1949. 77 pp.

BEING A GOOD PARENT. James L. Hymes, Jr. New York: Bureau of Publications, Teachers College, 1949. 52 pp. Price, $.60.

BIOCHEMICAL PREPARATIONS, VOL. I. Herbert E. Carter. New York: Wiley, 1949. 74 pp. Price, $2.50.

BACKGROUNDS OF SOCIAL MEDICINE. Papers Presented at a Round Table at the 1947 Annual Conference of the Milbank Memorial Fund, November 19–20, 1947. New York: Milbank, 1947. 200 pp. Price, $1.00.

COMICS, RADIO, MOVIES AND CHILDREN. Josette Frank. New York: Public Affairs Committee, 1949. 32 pp. Price, $.20.

DIRECTORY OF STATE MERIT SYSTEMS. Washington, D. C.: Federal Security Agency, Division of State Merit System Services, 1949. 26 pp.

FIELD OF RECREATION, THE. Walter L. Stone. New York: William-Frederick, 1949. 41 pp. Price, $1.00.

FILM AND EDUCATION. Edited by Godfrey M. Elliott. New York: Philosophical Library, 1948. 575 pp. Price, $7.50.

FUN IN THE WATER. Thomas Kirk Cureton, Jr. New York: Association Press, 1948. 129 pp. Price, $4.00.

GUIDE TO THE TEACHING OF HEALTH IN THE ELEMENTARY SCHOOL (Health Education Series Bulletin No. 2). Albany, N. Y.: University of the State of New York. 216 pp.

HOME RULE FOR AMERICA'S CITIES. Rodney L. Mott. Chicago: American Municipal Assn., 1949. 68 pp. Price, $1.50.

HOW TO TELL YOUR CHILDREN ABOUT SEX. James L. Hymes, Jr. New York: Public Affairs Committee, 1949. 32 pp. Price, $.20.

IN THE NAME OF HUMANITY. Joseph Lewis. New York: Eugenics Publishing, 1949. 156 pp. Price, $2.00.

INSTRUMENTS, LABORATORY SPECIALTIES AND TEACHING AIDS FOR THE MEDICAL AND ALLIED SCIENCES. Catalog 104. New York: Clay-Adams. 164 pp.

MARINE'S LEGACY, A. Grayson D. Williams. New York: William-Frederick, 1949. Price, $1.00.

MEDICOLEGAL PROBLEMS SERIES II, SYMPOSIUM ON. Edited by Samuel A. Levinson. Philadelphia: Lippincott, 1949. 272 pp. Price, $5.00.

NURSING OF THE SICK 1893. Isabel A. Hampton and others. New York: McGraw-Hill, 1949. 209 pp. Price, $3.50.

OUTLINE FOR A BASIC COURSE IN HEALTH EDUCATION FOR TEACHER TRAINING IN MONTANA, AN. Sponsored by University of Montana, State Department of Public Instruction, State Board of Health, Montana Extension Service, State Department of Public Welfare, W. K. Kellogg Foundation. Helena: Montana State Board of Health. 137 pp.

PERSPECTIVES IN MEDICINE. The March of Medicine, 1949. 6 Lectures to the Laity on Frontiers of Medical Research. New York: Columbia University Press, 1949. 154 pp. Price, $2.50.

PINEVILLE HIGH MEETS THE CHALLENGE. A Store of the Effects of Hookworm and Ways of Treating and Preventing the Disease. Dorothy C. Stephens. Gainesville, Fla.: University of Florida, 1948. 54 pp. Price, $.15.

PROCEEDINGS OF THE FOURTH INTERNATIONAL CONGRESSES ON TROPICAL MEDICINE AND MALARIA. Volume I. Washington: U. S. Gov. Ptg. Office, 1949. 946 pp.

PUBLIC HEALTH IN THE WORLD TODAY. Edited by James Stevens Simmons, with a Foreword by James Bryant Conant. Cambridge, Mass.: Harvard University Press, 1949. 332 pp. Price, $5.00.

READING IS FUN. Developing Children's Reading Interests. Roma Gans. New York: Bureau of Publications, Teachers College, 1949. 51 pp. Price, $.60.

RODDY THE RAT. George S. Bote (rev. ed.) Gainesville. Fla.: University of Florida, 1949. 72 pp. Price, $.15.

SAFETY IN SPORTS. Don Cash Seaton. New York: Prentice-Hall, 1949. 401 pp. Price, $4.50.

SEWER RENTALS IN PENNSYLVANIA MUNICIPALITIES. State College, Pa.: Pennsylvania Municipal Publications Service, 1949. 45 pp. Price, $1.00.

SCHOOL HEALTH EDUCATION. Delbert Oberteuffer. New York: Harper, 1949. 393 pp. Price, $3.25.

TEACHER'S GUIDE FOR HEALTH EDUCATION. Morey R. Fields,, and Avis E. Edgerton. Brooklyn, N. Y.: Chemical Publishing, 1949. 489 pp. Price, $6.75.

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PUBLIC HEALTH IN EAST YORK-LEASIDE, CANADA. ANNUAL REPORT 1947. East York, Can.: Department of Health. 20 pp.

REPORT OF THE COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER, 1947 London: Staples Press Ltd., 1948. 101 pp. Price, 2s. 10d.

TUBERCULOSIS. BIBLIOGRAPHY ON STREPTOMYCIN. Geneva Switzerland: World Health Organization, 1949. 100 pp.

WINNIPEG, MAN. REPORT OF THE MEDICAL HEALTH OFFICER, 1948. Winnipeg, Manitoba, Can.· City Health Department. 26 pp.

WASHINGTON INDUSTRIAL HYGIENE ANNUAL REPORT 1947. Seattle, Wash.: Department of Health. 10 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

First Time—What soothing words could be added by way of annotation to the ominous threat hidden in the title that follows?

ANON. Women Now Outnumber Men. Stat. Bull. (Met. Life Ins. Co.) 30, 2:4 (Feb.), 1949.

"Proud in Humility" — Virtual elimination of deaths from the four common communicable diseases of childhood is now in sight. So concluded a study of the reduction of mortality from scarlet fever, whooping cough, diphtheria, and measles. Health people would find more solid satisfaction in their contributions to this happy ending if reductions in scarlet fever deaths were not much greater than those from the two diseases against which they offer prophylactic measures—whooping cough and diphtheria.

ANON. Recent Gains against the Childhood Diseases. Stat. Bull. (Met. Life Ins. Co.) 30, 2:1 (Feb.), 1949.

Hospitalization Has Helped—Infant deaths have dropped to a third of the 1915 rate (100 per 1,000 births in those days). However, the present low rate for the whole country conceals some scandalously high extremes. In 5 states the non-white deaths still exceed the 1915 general rate.

ALTENDERFER, M. E., and CROWTHER, B. Relationship Between Infant Mortality and Socio-Economic Factors in Urban Areas. Pub. Health Rep. 64, 11:331 (Mar. 18), 1949.

On Our Way—We are progressing in our American studies of the efficacy of BCG. In the New York State plan immunization is being extensively used with tuberculin negative reactors who are occupationally exposed — nurses, medical students, hospital personnel.

BIRKHAUG, K. E. New Developments in BCG Vaccination. New York State J. Med. 49, 4:401 (Feb. 15), 1949.

The Order Changeth—You'll have to admit that at least one medical journal opens its pages to the other side of the story. In this one a proponent "presents astutely and temperately certain arguments in favor of compulsory

health insurance." (The quote is from an accompanying editorial.)

BUTLER, A. M. Public Financing of Medical Education, Research, Health and Medical Care. New England J. Med. 240, 9:324 (Mar. 3), 1949.

Hair-Raising Nostrums—Of course you're an authority on scalp health! Aren't you in the health business? My advice to you is to be prepared to keep your friends out of the clutches of the hair experts.

COMMITTEE ON COSMETICS. Hair and Scalp Treatments and Preparations. J.A.M.A. 139, 13:840 (Mar. 26), 1949.

"Count Not the Day Lost——"—Do you know that phorology is the study of disease carriers? I didn't either until this provocative paper drove me to the dictionary. The student of the science who wrote it proposes (posthumously) two useful epidemiological terms.

FORSBECK, F. C. "Infection Unit" and "Index of Aggregation." Pub. Health Rep 64, 11:343 (Mar. 18), 1949.

Never Underestimate the (Will) Power of a Woman—It seems there is more to preparing for babies born without anesthetics than just pep talks. Mothers have to be taught how to do the job. Properly indoctrinated and trained, 9 out of 10 could be—and were glad to be—delivered while awake.

GOODRICH, F. W., JR. Experience with Natural Childbirth. Pub. Health Nurs. 41, 3:122 (Mar.), 1949.

Noses Worse Than Throats—Have you, too, the sort of mind that relishes facts of no likely use to you? Then you'll tuck away happily this finding that when nasal—not throat—carriers of hemolytic streptococci increase then an epidemic is likely to be on its way.

HAMBURGER, M., JR., *et al.* The Significance of Nose to Throat Carrier Ratios in the Epidemiology of Hemolytic Streptococcal Infection. Am. J. Hyg. 49, 2:140 (Mar.), 1949.

Service Plus Research—Because we have no definite measure of mass x-ray as a case finding method, a county-wide survey was undertaken in an attempt to find the answers, some of which cannot be known until time has elapsed to discover new cases among examined and unexamined groups.

COMSTOCK, G. W., *et al.* Tuberculosis Studies in Muscogee County, Georgia. Pub. Health Rep. 64, 9:259 (Mar. 4), 1949.

Trace Elements—References to review articles appearing in formal series have seldom been included in this bibliography but the self-imposed rule is bent this time to permit the mention of an excellent paper. Most of what is known, or maintained, or even guessed about the role of fluorine in dental health is so usefully and clearly set forth that you can't afford to miss it.

MCCLURE, F. J. Fluorine and Other Trace Elements in Nutrition. J.A.M.A. 139, 11:711 (Mar. 12), 1949

First They Bought a Projector—How a visual-aid plan for at-work training of public health nurses grew up into a community health educational film service is provocatively told. The two years' experience has been challenging, alive, and fun, the reporter alleges.

MOORE, W. L. Adventuring with Visual Education. Pub. Health Nurs. 41, 3:134 (Mar.), 1949.

Female of the Species—Among a group of four thousand-odd immunized clerks, reactions to influenza vaccines were not sufficiently numerous nor severe to be a deterrent to future efforts. One finding will give you something to mull over: reactions were twice as common and four times as severe among the "females." Egg-sensitive individuals were excluded, of course.

SADUSK, J. F., JR., *et al.* A Comparative Study of Reactions Following Inoculation with Red Cell Elution and Sharples Centrifuged Influenza Vaccines. Am. J. Hyg. 49, 2:148 (Mar.), 1949.

Go-Getters, Ltd. — An appalled British V.D. Officer writes a "you'll-never-believe-this" sort of account of our amazing case finding antics. Please, please do your best to hunt out this delightfully objective reporting. "We are certainly not ready," he concludes, "if we ever will be, for a venereal disease 'police,' but case-finding . . . might pay dividends."

WILLCOX, R. R. Venereal Disease Case-Finding—the American Way. Pub. Health 62, 5:99 (Feb.), 1949.

Gets Results—Here is an analysis of the relative effectiveness of various case finding procedures in bringing in for treatment 2,400 new cases of syphilis. All this happened in an ordinary control program such as any health department might put on.

WRIGHT, J. J., and SHEPS. C. G. Reports of the North Carolina Syphilis Studies. J. Ven. Dis. Inform. 30, 2:35 (Feb.), 1949.

MOTION PICTURE REVIEWS

For more than a year the Committee on Motion Picture Films of the A.P.H.A. Health Education Section has been studying the problem which health educators and many other health workers continually face in producing and using motion picture films. A recent result of this committee's work was the publication in the February issue of the *Journal* of a bibliography of film catalogs. Reprints of this bibliography are available and it is expected that it will be brought up-to-date from time to time.

The next step in the committee's program is the plan for regular publication in the *Journal* of new film titles with a brief description and reviews of current films which seem to be of outstanding and general interest. The Editorial Board of the *Journal* has approved this recommendation and has set aside space up to a page a month for this purpose. The committee asks that all those who produce new films advise the Association office when these films are ready for release. Information should include running time, whether in color or black and white, whether in sound or silent, width of film, name of producer, intended audience, and terms on which it may be secured and where it may be secured. With this information at hand, the committee will, from time to time, request prints of films which may be reviewed by a team of qualified reviewers. Reviews accepted by the *Journal* for publication will represent the opinions of the reviewers and not necessarily that of the committee or the Association.

The committee expects that reviews will be confined to pictures intended for popular health education or for instruction of various types of public health workers. It does not expect to include medical teaching films, other medical films, or other scientific films primarily designed for professional audiences outside of the public health field. The reviews will deal only with new films as they are produced. Reviews and listings will embrace only those films which have been released since January 1, 1949. Further inquiries concerning the plan for listing and review of films and other aspects of the work of the film committee may be addressed to Mr. Kenneth Widdemer, *Chairman* of the Section Committee on Motion Picture Films, American Public Health Association, 1790 Broadway, New York 19, N. Y.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

FELLOWSHIP IN THE AMERICAN PUBLIC HEALTH ASSOCIATION

The grade of Fellowship was established in the American Public Health Association in 1922. Professional workers in public health are eligible for election as Fellows under certain conditions and as an indication that they have achieved a recognized professional standing. As of January 1, 1949, the total membership of the Association was 11,102, including 2,093 Fellows, or almost 19 per cent of the total.

Questions are frequently asked regarding the requirements for Fellowship and the following statement outlines the provisions of the By-laws governing qualification and election.

Persons who have been members of the Association for at least two years and who have reached their 30th birthday are eligible to apply if, in their opinion, they meet the conditions of one or more of the six clauses in the By-laws defining "an established professional standing." These six possible approaches are as follows:

a. A person who has rendered acceptable service for two or more years in a responsible public health position and who has been awarded in course a degree of Doctor of Public Health, Doctor of Science in Public Health, Doctor of Philosophy in Public Health, Doctor of Medicine, with at least one year of graduate study in public health in a university, Master of Public Health, Diploma in Public Health, or other equivalent degrees, according to standards approved by the Executive Board of the American Public Health Association.

b. A person who has been awarded in course an academic or professional degree involving training in public health and who has been regularly engaged in health work for at least five years, having rendered meritorious service as a health officer or in responsible charge of work in either a public or private health agency.

c. A person who has done notable original work in public health or preventive medicine of a character to give him a recognized standing.

d. A person regularly engaged in health work for at least five years, who has given evidence of special proficiency, who has attained a recognized standing.

e. A teacher of public health or one of its constituent sciences who has attained distinction as an expounder of the principles of public health or its constituent sciences. Such a teacher shall have had at least five years' experience as a teacher of public health subjects. Any years of experience as defined in paragraphs "b" and "d" that the applicant may have had shall be considered the equivalent of the same number of years' experience as a "teacher."

f. A person not covered by the above, who has made substantial contributions to public health work in his chosen branch, who has attained a recognized professional standing.

Persons wishing to apply should request a Fellowship application blank from the American Public Health Association Membership Department, 1790 Broadway, New York 19, N. Y. Applications are accepted up to August 1 each year for consideration by the Governing Council at the fall meeting. It is important to make clear that mem-

bers themselves should take the initiative in submitting such applications. Neither the Sections nor the A.P.H.A. administrative staff are authorized to solicit applications. This means that, although over 3,000 persons have been duly recognized with this grade of affiliation since 1922, there are other persons well qualified who have never initiated the process of applying for Fellowship. It should be clear that members should not await action by others if they wish to attain Fellowship. It is necessary and proper for them to take the first step.

An application for Fellowship requires sponsorship by two Fellows of the Section with which the applicant desires to be affiliated. These personal signatures are to be obtained by the applicant before submitting the completed application. The A.P.H.A. office will assist, on request, in determining the Section with which prospective sponsors are affiliated. Applications from persons not wishing to be identified with a particular Section and requesting unaffiliated Fellowship may be sponsored by any two Fellows of the Association.

When properly sponsored and otherwise completed, the application is sent to the A.P.H.A. office, after which the list of persons applying is published in the *American Journal of Public Health*, usually in the September issue, but in any case not less than 15 days before the date for the Annual Meeting. An established routine is followed for review by the Section Councils (unaffiliated applications are reviewed by the Executive Board) and by the Committee on Eligibility. This Standing Committee of the Association is made up of one Fellow from each of the 13 Sections, plus a Chairman elected by the Executive Board. This group is under instructions from the Governing Council to examine each application in accordance with the provisions of the clause of the By-laws chosen by the applicant, and to apply the criteria with precision in each case. Final election is by the Governing Council at the second meeting at each annual session.

The privileges of Fellowship include eligibility to serve as an officer of the Association or one of the Sections, Chairman of an Association or Section Committee (over one hundred in number), a member of one of the four Standing Committees, a member of the Governing Council or Executive Board, and the right to vote for the elective members of the Governing Council and on amendments to the Constitution. Some Civil Service and merit system records depend upon Fellowship in the American Public Health Association as an achievement deserving recognition in applicants.

The dues of Fellows are $12.00 annually, and include a subscription to the *American Journal of Public Health* and other services to which members are eligible. Life Membership is available at $200, covering all future annual dues.

Applications for Fellowship to be considered at the 77th Annual Meeting in New York, N. Y., the week of October 24, should be filed with the Association as soon as they are completed, and in any case not later than August 1. For further information, address the Membership Department, American Public Health Association.

A.P.H.A. membership application blank on page XXXIX

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

	Rooms with Bath	
Hotels	*Singles*	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	3.50–10.00	8.00–14.00
Statler	4.00– 7.50	6.50–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

* The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949

(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
Double Room without Bath at $..... per day for ..... persons
Single Room without Bath at $..... per day
Suite at $..... per day for ..... persons

ARRIVING: OCTOBER .... Hour ..... LEAVING: OCTOBER .... Hour .....
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name .....
Street Address .....
City ..... State .....

Mail Direct to the Hotel of Your Choice.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

NOMINATIONS FOR THE GOVERNING COUNCIL

The Association Nominating Committee for Governing Council Members reports the following nominations for the Governing Council, in accordance with the new By-laws which call for publication of these names to the Fellowship not less than five months before the Annual Meeting. The Nominating Committee is composed of one Fellow elected by each Section and a Chairman appointed by the Executive Board. The Chairman is George T. Palmer, Dr.P.H., Consultant in Public Health Administration with the California State Department of Public Health, and the other members are: Donald B. Armstrong, M.D., Public Health Education Section; David B. Ast, D.D.S., Dental Health Section; Walter H. Brown, M.D., School Health Section; William H. Cary, Jr., Engineering Section; Halbert L. Dunn, M.D., Statistics Section; Helen F. Dunn, Public Health Nursing Section; Marcia S. Hays, M.D., Maternal and Child Health Section; Ethel A. Martin, Food and Nutrition Section; C. A. Perry, Sc.D., Laboratory Section; Edward A. Piszczek, M.D., Health Officers Section; Dean W. Roberts, M.D., Medical Care Section; James G. Townsend, M.D., Industrial Hygiene Section; and Milton V. Veldee, M.D., Epidemiology Section.

The By-laws further provide that "upon the petition of twenty-five Fellows, the Nominating Committee shall add the name of any Fellow to the nominees selected by it, provided such petition is received not less than three months before the Annual Meeting." This means that names will be added to the following list if properly supported by petition and received in the Administrative Office not later than July 24.

The change in the election routine which was approved at the Boston Annual Meeting calls for a mail vote on the elective councilors. This is the first time in the history of the Association that all Fellows will have the privilege of voting for Governing Council members regardless of attendance at the Annual Meeting, and it is hoped that every Fellow will exercise this right to vote. Official ballots containing the names of the following nominees and any added by petition will be mailed to all Fellows early in August, and Fellows will be allowed up to September 24 to return their marked ballots. Immediately after this date Tellers appointed by the President will canvass the vote on the elective councilors and will report the result to the Governing Council at its first meeting during the New York City Annual Meeting. The ten nominees receiving the highest number of votes on the ballots cast by the Fellows will be declared elected to fill the three-year terms expiring in 1952.

Jessie M. Bierman, M.D.
University of California
Berkeley, Calif.

Leroy E. Burney, M.D.
State Board of Health
Indianapolis, Ind.

Dean A. Clark, M.D.
Health Insurance Plan of Greater New York
New York, N. Y.

Edwin F. Daily, M.D.
U. S. Children's Bureau
Washington, D. C.

Donald A. Dukelow, M.D.
American Medical Association
Chicago, Ill.

Marietta Eichelberger, Ph.D.
Evaporated Milk Association
Chicago, Ill.

Ruth Freeman, R.N.
American National Red Cross
Washington, D. C.

Marjorie M. Heseltine, M.A.
U. S. Children's Bureau
Washington, D. C.

John W. Knutson, D.D.S.
U. S. Public Health Service
Bethesda, Md.

Herbert R. Kobes, M.D.
University of Illinois
Springfield, Ill.

Alexander D. Langmuir, M.D.
Johns Hopkins University
Baltimore, Md.

Howard W. Lundy, Dr.P.H.
State Department of Health
Seattle, Wash.

John T. Marshall
Dominion Bureau of Statistics
Ottawa, Ont.

Harold H. Mitchell, M.D.
Health Department
Rockville, Md.

Dorothy Nyswander, Ph.D.
University of California
Berkeley, Calif.

George T. Palmer, Dr.P.H.
State Department of Public Health
San Francisco, Calif.

Edith P. Sappington, M.D.
U. S. Children's Bureau
San Francisco, Calif.

Leonard A. Scheele, M.D.
U. S. Public Health Service
Washington, D. C.

William H. Sebrell, Jr., M.D.
National Institutes of Health
Bethesda, Md.

Walter D. Tiedeman, M.C.E.
State Department of Health
Albany, N. Y.

George M. Wheatley, M.D.
Metropolitan Life Insurance Co.
New York, N. Y.

Samuel M. Wishik, M.D.
New York City Health Department
New York, N. Y.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Freeman B. Agnelli, M.D., 25 Elm Street, Westerly, R. I., Superintendent of Health and School Physician

J. B. Askew, M.D., M.P.H., San Diego Health Dept., Civic Center, San Diego, Calif., Asst. Director of Public Health

Frederick A. Blesse, M.D., 69 Ingalls Road, Ft. Monroe, Va., Chief Surgeon, Army Field Forces

Frederick B. Dart, M.D., 61 Main Street, Niantic, Conn., Health Officer, Town of East Lyme

George W. Easley, M.D., Williamson Memorial Hospital, Williamson, W. Va., Chief Surgeon and Director

Tai Fan-Yuan, M.D., M.P.H., Shanghai Quarantine Service, Custom House, Shanghai, China, Director

Thomas E. Kinnane, Jr., The Sharon Hospital, Inc., Sharon, Conn., Administrator

Frank E. Kitchen, D.V.M., P. O. Box 2207, Greenville, S. C., Commissioner of Health

E. N. MacKay, M.D.C.M., D.P.H., Saanich Health Unit, 3947 Quadra St., Victoria, B. C., Canada, Director

Donald McKinley, M.D., Harper Hospital, Detroit, Mich., Asst. Director

Capt. Robert W. Merkle, M.C., Office of the Surgeon, Hqs. 1st Army, Governor's Island, New York, N. Y., Venereal Disease Control Officer

Major Donald S. Myers, M.C., General Dispensary, 12th & Spruce Sts., St. Louis 2, Mo., Commanding Officer, General Dispensary, U. S. Army

Stanley J. Nowels, Townhouse, Teaneck, N. J., Health Officer

Margaret W. H. O'Meara, M.D., 3 Roxy Theatre Bldg., Lethbridge, Alta., Canada, District and City Health Officer

Harry O. Price, City Bldg., Butler, Pa., City Health Officer

D. E. Parry Pritchard, M.D., D.P.H., County Offices, Caernarvon, North Wales, County Medical Officer of Health and School Medical Officer

Capt. William J. Rees, M.C., 4228 South Benton, Kansas City, Mo., Commanding Officer, 8th Station Hospital, and Kobe (Japan) Base Surgeon

Joseph F. Rudmin, M.D., Port Leyden, New York, Village Health Officer

Hugh J. Savage, M.D., 737 W. Elm St., Lima, Ohio, Plant Medical Director, Westinghouse Electric Corp.

Edward L. Scheehle, 100 North 5th St., Martins Ferry, Ohio, Health Commissioner

Philip P. Thompson, Jr., M.D., 704 Congress St., Portland, Me., Health Officer of South Portland

John P. Wells, M.D., D.P.H., Prince Edward County Health Unit, Picton, Ont., Canada, Director

Laboratory Section

Barnett D. Asbel, Ph.G., 269 Broadway, Passaic, N. J., Director, Physicians Laboratory Service

Marion K. Cooney, 629 University Ave.. S.E., Minneapolis, Minn., Bacteriologist, Virus and Rickettsial Unit, State Dept. of Health

Rafael L. Crespo, Luis M. Rivera St., Vega Alta, P. R., Student, School of Tropical Medicine

M. Evelyn Davis, Davis Labs., Nevada City Hosp., Nevada, Mo., Laboratory Technician

Warfield Garson, M.D., Venereal Disease Research Lab., U.S.P.H.S., Staten Island, N. Y., Asst. Director, in charge of Antibiotic Research

Lucile Goggin, 147 Lathrop, Madison, Wis., Bacteriologist, State Laboratory of Hygiene

Lester M. Goldman, M.D., 53 Leslie St., Newark, N. J., Director of Laboratories, Beth Israel Hospital

Alfhild J. Johnson, M.P.H., 1512 West Drive, Bakersfield, Calif., Senior Bacteriologist, Kern County Health Dept.

Mary P. Johnson, 107 Howland St., Boston 21, Mass., Asst. Bacteriologist, State Dept. of Public Health

Wanda S. Kazowska, 69 Governor St., Hartford, Conn., Laboratory Technician, Pratt & Whitney Aircraft

Angelo Lapi, M.D., Denver General Hospital, Denver, Colo., Medical Examiner, City and County of Denver

Howard W. Larsh, Ph.D., Plant Sciences Dept., Univ. of Oklahoma, Norman, Okla., Professor and Chairman of Department

C. L. Manning, Box 1379, Fort Worth, Tex., Vice-President, Fort Worth Laboratories

Dwight J. Mulford, Ph.D., 306 Riverway, Boston, Mass., Asst. Director, Division of Biologic Laboratories, State Dept. of Public Health

Italo A. Peragallo, M.D., 9 de Julio 3467, Santa Fe, Argentina, S. A., Professor of Applied Microbiology, Univ. Nacionale del Litoral

Jean A. Shafer, 1511 Greycourt Ave., Richmond 22, Va., Bacteriologist, State Dept. of Health

Bruce E. Shively, 524 West 57th St., New York, N. Y., Head Quality Control Supervisor, Sheffield Farms Co.

M. Michael Sigel, Ph.D., 1740 Bainbridge St., Children's Hosp., Philadelphia 46, Pa., Assoc. in Virology, School of Medicine, Univ. of Pennsylvania

Abraham M. Tornow, Ph.G., 37 Bentley Ave., Jersey City, N. J., Director, A. M. Tornow Clinical Laboratory & Fairmount Hospital Laboratory

Edward L. Tully, 64 Fay St., Lowell, Mass., Biological Aide, U. S. Public Health Service

Cornelia P. D. Wagner, 400 29th St.. Oakland 9, Calif., Director, Medical Center Clinical Laboratory

Yau Wai Wong, M.A., 2200 Hazelton Court, Topeka, Kans., Principal Bacteriologist, State Board of Health

Statistics Section

Ira Mae Brown, 105 E. Pomona St., Santa Ana, Calif., Clerk and Deputy Registrar, Orange County Health Dept.

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A MESSAGE FROM THE CIRCULATION DEPARTMENT

Certain 1948 issues of the *American Journal of Public Health* are needed to complete sets for members and subscribers. The *Journals* that are in short supply are January, March, August, September, and October. It will be appreciated if members or subscribers who can spare any of these issues will mail them collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19, N. Y.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Public Health Nurse as Director, Metropolitan voluntary nursing agency, staff of *more than 30. Write: Box A-55, Employment* Service, A.P.H.A.

Sanitary Engineer, Maryland State Department of Health. Degree in S.E. with at least six years' sanitary engineering experience, two of which in responsible charge. Starting salary $5,000; five day *week, retirement plan. Write: George L.* Hall, Chief Engineer, 2411 N. Charles St., Baltimore 18, Md.

Sanitary Engineer, city health department near Chicago. Staff includes 7 sanitarians. Salary range $4,000 to $4,800 depending upon training and experience. *Write Box A-56, Employment Service,* A.P.H.A.

Public Health Nursing Supervisor for generalized program in official health agency. Salary range $3,500 to $4,200 depending upon qualifications and training. Community near Chicago; pension, travel expenses; *paid sick leave. Write Box* A-57, Employment Service, A.P.H.A.

Associate Executive Secretary for health council in midwestern city. Graduation from accredited university, advanced study in health field, executive experience in health field required. Experience in *community organization desired. Salary* range $3,500 to $5,400 with annual increment plan. Write Box A-58, Employment Service, A.P.H.A.

Chief Public Health Nurse for City-County Health Department, staff of fifteen nurses. Salary $275–$350 monthly *with possible increase in near future.* Write: Dr. Fred Long, Director of Health, Lincoln-Lancaster County Health Department, 935 R Street, Lincoln, Nebr.

District Health Officer, Thurston-Mason District Health Department, Olympia, Wash. Salary range $7,440–$9,120, plus *8¢ per mile traveling expenses for use of* personal car. Minimum requirements, three years' professional medical experience and the equivalent of one year graduate study in public health. Write: Dr. J. A. Kahl, 1412 Smith Tower, Seattle, Wash.

Assistant Director, State Bureau of Local Health Services. Salary $6,300–$7,900. Write Box A-59, Employment Service, A.P.H.A.

Clinical Laboratory Technician capable of performing laboratory examinations *under the direction of a clinical patholo*gist. Salary range from $150 to $250 monthly depending on qualifications. Write: Dr. George O. Hartman, 20 East Ochoa, Tucson, Ariz.

Medical Technician in approved modern 100 bed general hospital, Southwest Okla*homa, excellent location, 40 hour week,* double pay for holidays, one month paid vacation yearly, paid sick leave, automatic yearly promotions, disability compensation coverage, retirement system. Write Box *139,* Lawton, Okla.

Qualified Public Health Nurses: Greene *County. Official agency; generalized pro*gram. Salary $2,500 plus 8¢ mileage allowance; yearly increment for five years; four weeks vacation; 38 hour week, sick leave, retirement system. State experience and postgraduate study. Write: Ernest Canniff, Chairman, Public Health Committee, Court House, Catskill, N. Y.

Three Qualified Public Health Nurses for Marion County Health Department, Salem, Ore. Salary $250 per month to start; transportation furnished. Permanent. Write: Harold M. Erickson, M.D., State Health Officer, 1022 S. W. 11th Avenue, Portland 5, Ore.

Experienced Bacteriologist for city public health laboratory to perform water and milk laboratory examinations and general bacteriological and serological laboratory work. Salary range $325 to $350 monthly. Write: F. A. Musacchio, M.D., City Health Department, City Hall, Hammond, Ind.

Associate Bacteriologist, public health, Master's degree. Two years postgraduate experience. Salary range $326 to $370 per

month. Permanent position under effective civil service. Write: Director of Laboratories, Laboratory Section, St. Louis Health Division, Room 32, Municipal Courts Bldg., St. Louis, Mo.

Rural Training Center Personnel: Nursing, Sanitation, and other personnel interested in positions in a Rural Training Area apply to: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Four District Health Officers. Salary $5,760 to $6,960 at present, with probable maximum of $8,000 soon. Write to: Roland R. Cross, M.D., Director, Illinois Department of Public Health, Springfield, Ill.

Dental Hygienist: Assist dentist in dental health program. Work exclusively with children. Salary to start $2,500. Write: Dr. Junius B. Johnson, City-County Health Department, City Hall, Kalamazoo, Mich.

Professor and Chairman of department of Civil Engineering, Eastern University. Recognized specialist in Sanitary Engineering, with teaching and administrative experience preferred. Write: **Box A-60**, Employment Service, A.P.H.A.

Public Health Nurse Supervisor—Minimum requirements: completion of a program of study in public health nursing meeting the requirements of the N.O.P.H.N. and extending throughout at least one academic year, with bachelor's degree preferred. Salary range, $3,340–$3,808; 40 hour week; retirement plan; liberal vacation and sick leave. Write: Personnel Department, City Hall, Jackson, Mich.

ANNOUNCEMENT

Civil Service Commission—County of Wayne

The Civil Service Commission, Detroit, Mich., announces an examination for Public Health Nurses. Applicants must be citizens of the United States. They must have graduated from an accredited school of nursing, must be eligible for registration as nurses in the State of Michigan, and have a certificate in Public Health Nursing or its equivalent. Salary starts at $3,360 with annual increases to $3,720. The Commission will attempt to arrange convenient examination centers for those people who apply. Write to: Civil Service Commission, County of Wayne, 2200 Barlum Tower, Detroit 26, Mich.

POSITIONS WANTED

Public Health Physician, 39, M.D., M.P.H. from leading universities, twelve years full-time public health experience covering both small and large units, five years' teaching experience in medical school, now assistant professor of Public Health and Preventive Medicine. Will consider desirable opening at salary consistent with background. Write **Box Ph-12,** Employment Service, A.P.H.A.

Health Educator, R.N., M.S., female, single, 15 years' college health teaching and considerable experience in administration and organization in nonofficial agencies; experienced public speaker; some creative writing. Interested in position involving administration, organization, education, and creative writing in college or community organization, voluntary or public agency. Write **Box HE-12,** Employment Service, A.P.H.A.

Sanitary Engineer or Public Health Engineer, 37; B.S. in Sanitary Engineering, 14 years' experience (3 with a city Engineering Department; 5 with Sanitary Corps U. S. Army; 6 with a rural health department). Prefer Southern States. Write **Box E-10,** Employment Service, A.P.H.A.

Sanitarian—B.A. in chemistry, male, 27, 2 years' experience in industrial chemistry, veteran (Army CWS), 1½ years' public health experience in environmental sanitation, including milk control and food and drug control. At present employed by state health department of southern state. Desires position as sanitarian with city or county health department in Southern California. Minimum salary: $2,700–$3,000 depending on location. Write **Box S-1,** Employment Service, A.P.H.A.

Public Health Physician, Spanish, with more than 15 years of employment and experience in all problems of public health, including tropical pathology, desires University position (teaching or research) or in public health service (Epidemiology). Write **Box Ph-13,** Employment Service, A.P.H.A.

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All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Public health physicians for administrative positions; city and county health departments; $8,000–$10,000; East. (b) Director; maternal, child health and crippled children's services; West. (c) Director, city-county health department; staff of fourteen; town of 45,000; Middle West. (d) Pediatrician to head school health program; town of 60,000; Pacific Northwest; $8,000. (e) Director, student health; coeducational college; 3,000 students; university medical center; East; $8,500–$10,000. PH5-1 Burneice Larson, Medical Bureau, Palmolive Building Chicago.

WANTED—(a) Health educator; Master's required; Southern California. (b) Director, public health laboratory; Ph.D. required; $4,800–$5,400; Middle West. (c) Health educator; Master's in public health desirable; New England division of national organization. (d) Sanitary engineer to supervise all sanitation with respect to food, water, milk, other sanitation problems; town of 100,000 near Chicago; well staffed department. (e) Health educator; duties include preparing literature in field of health; headquarters, Chicago. (f) Health education coördinator; county health department; California. PH5-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—PUBLIC HEALTH NURSES FOR FOLLOWING—(a) To direct visiting nurse association, long established, university medical center; staff consists of five supervisors and twenty-eight field staff. (b) To direct school health program; public school system; staff of fourteen nurses, 16,000 children; Middle West. (c) To serve as public health coördinator; voluntary hospital of more than 500 beds; vicinity New York City. (d) To direct public school program; residential town near Chicago. (e) Supervisory position; Master's degree preferred; Alaska. (f) To direct generalized nursing program including school health services; city health department; $4,500–$5,000. (g) Supervisory position; generalized program operated under United States auspices in South America. (h) To direct division, public health nursing; generalized program; Chicago area; $4,200. PH5-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

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Public health administrator; M.D., M.P.H., Harvard; in 1939 reorganized city health department and remained as its director; simultaneously has held important faculty appointment; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S., Civil Engineering; several years, sanitary engineer, tropics; past four years, chief, engineering division, county department of health, serving population of 150,000; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Statistician; M.S., Ph.D. degrees; five years' teaching experience; past several years, director, vital statistics, division city health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; Master's degree, Public Health (Eastern university); four years, health educator, county health department; three years, health coördinator, liberal arts college; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Public health nurse is available for administrative position; graduate of five year public health nursing course; B.S., Simmons; M.P.H. Health education, eastern university; three years, director health education, state university; eight years' executive experience in public health nursing; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

DR. MARTHA ELIOT TAKES WHO POSITION

It was announced in Washington and Geneva on April 16 that Martha M. Eliot, M.D., Associate Chief of the U. S. Children's Bureau, had resigned to accept appointment as Assistant Director General of the World Health Organization, United Nations, in Geneva.

Dr. Eliot, who has served the Children's Bureau for twenty-five years, expected to assume her new position June 1. The appointment was made by Brock Chisholm, M.D., Director General of WHO. Dr. Eliot has been among the group responsible for the original planning of WHO, having been a member of the United States Delegation at the original conference and one of the signers of the original Constitution. In her new position she will be responsible for the Department of Operations, including the supply of experts and demonstration teams and the supervision of fellowships in the program of WHO directed against tuberculosis, malaria, venereal diseases, maternal and child health, etc.

At a press conference Dr. Eliot recalled that in the twenty-five years which she has served the Children's Bureau the infant mortality of the United States had dropped 55 per cent and that maternal mortality had dropped 79 per cent.

Dr. Eliot is immediate Past President of the American Public Health Association and was a recipient in 1948 of a Lasker Award for achievement in public health administration.

DR. LEONA BAUMGARTNER NAMED ASSOCIATE CHIEF OF THE CHILDREN'S BUREAU

On April 16 the appointment of Leona Baumgartner, M.D., Assistant Commissioner of Health of the New York City Department of Health, as Associate Chief of the U. S. Children's Bureau, Washington, succeeding Martha M. Eliot, M.D., resigned, was announced. Dr. Baumgartner's appointment was to be effective June 1 for a period of six months, during which time she will be on leave from New York City, with the possibility that the appointment may be permanent.

Dr. Baumgartner holds the M.D. and Ph.D. degrees from Yale University. She has previously served as District Health Officer and as Director of the Bureau of Child Health of the New York City Department of Health. She is Chairman of the A.P.H.A.'s Association Committee on Child Health and is a member of the Executive Board, A.P.H.A.

NATIONAL HEALTH COUNCIL MEETS

The National Health Council met in 29th annual session at the Hotel Roosevelt in New York City on March 25. Basil O'Connor, President of the American National Red Cross and the National Foundation for Infantile Paralysis, was the main speaker at the luncheon attended by nearly 500 persons. In his subject, "America's Potential for Health," he outlined the great progress that might be made in developing positive health for all the people through the use of local resources and initiative. Said he, "America's potential for health is America's potential for peace."

Other speakers included C. L. Williams, M.D., Assistant to the Surgeon General, who brought greetings from Surgeon General Leonard A. Scheele of the U. S. Public Health Service, and Vlado A. Getting, M.D., Health Commissioner of Massachusetts, in behalf of the Association of State and Territorial Health Officers.

At the business meeting preceding the luncheon the following officers were reëlected:

President, Philip R. Mather
Vice-President, Ernest L. Stebbins, M.D.
Treasurer, Haven Emerson, M.D.
Assistant Treasurer, Franklin M. Foote, M.D.

James E. Perkins, M.D. was elected Secretary.

The business meeting also elected 4 organizations to Council membership—the American Medical Association, the National Foundation for Infantile Paralysis, The American Physical Therapy Association, and the National Multiple Sclerosis Society, the last two as associate members.

The delegates approved revision of the by-laws by permitting broader representation among the membership of national organizations concerned with health.

An increase in the Board of Directors from 31 to 55 was voted. Twenty-one new directors and 8 delegates-at-large were elected.

The recently appointed executive director of the Council, Thomas D. Dublin, M.D., reported 1948 activities and 1949 plans to the delegates and the Board of Directors. "The weakest link in the chain of health services today is the lack of adequately trained professional and technical health personnel in sufficient numbers to meet the need," said he, in recommending increased effort at recruitment and training of public health workers. Dr. Dublin paid tribute to the more than 50 national civic and fraternal as well as health agencies represented in the National Advisory Committee on Local Health Units, which, with their thousands of state and local affiliates, have been working toward the development of adequate local health units and strong community health councils throughout the country.

BOSTON UNIVERSITY HONORS PUBLIC HEALTH LEADERS

The Annual Founders' Day of Boston University, March 14, included honors for Howard A. Rusk, M.D., Professor and Head of the Department of Rehabilitation and Physical Medicine, New York University College of Medicine, and Associate Editor of the *New York Times,* who received an honorary Doctor of Science.

Also to Catherine A. Worthingham, M.A., Director of Professional Education of the National Foundation for Infantile Paralysis, New York, Honorary Doctor of Science, together with Honorary degrees of Doctor of Science in Physical Education to Francisca Reyes Aquino, University of the Philippines, Manila; Ruth Evans, Assistant Supervisor of Health, Physical Education and Safety in the schools of Springfield, Mass.; Anna Hiss, Director of Physical Training for Women at the Univesity of Texas, and William Leonard Hughes, M.D., Professor and Director of Health and Physical Education at Temple University, Philadelphia.

WATER POLLUTION CONTROL ADVISORY BOARD

Another step was taken in the nationwide attack on water pollution with the appointment of government members of the Water Pollution Control Advisory Board. The board now consists of 11 members—6 non-governmental and 5 governmental representatives. The duty of the board as provided by the legislation establishing the board is "to review the policies and programs of the Public Health Service as undertaken under authority of the Act and to make recommendations in reports to the Surgeon General." The recently appointed members of the board are, non-governmental members: Thomas Berrigan, Director and Chief Engineer, Metropolitan District Commission, Boston; L. A. Danse, Chairman, General Motors Industrial Waste Committee, General Motors Corporation, Detroit: Dr. Stanley B. Freeborn, Assistant Dean, College of Agriculture, Univer-

sity of California; Michael Klein, Chief Engineer, Office of the President, Borough of Manhattan, New York City; Carl D. Shoemaker, Conservation Director, National Wildlife Federation, Washington, D. C.; and Nathan T. Veatch, Black & Veatch, Consulting Engineers, Kansas City, Mo. The governmental representatives are: Mark D. Hollis, Assistant Surgeon General and Chief Engineering Officer, U.S.P.H.S., Chairman; Lt. Col. Hugh M. Arnold, C.E., Executive Officer to the Assistant Chief of Engineers for Civil Works; Milton C. James, Assistant Director, Fish and Wildlife Service, Department of the Interior; James W. Follin, Assistant Administrator, FWA; and Ralph R. Will, Administrative Officer, Office of the Secretary, Department of Agriculture.

USE OF COMPOUND 1080

The Service Letter for March 23, 1949, of the National Pest Control Association calls attention to a laxness on the part of many pest control operators in the observance of precautions in the use of compound 1080 in pest control work. Several "case histories" are given to illustrate dangerous practices of some individual operators. Several constructive suggestions are given to reduce accident and fatality hazards in the use of 1080. The New York City Department of Health application for consent by the Commissioner of Health for the use of sodium fluoroacetate (1080) is also reproduced. The National Pest Control Association is located at 3018 Ft. Hamilton Parkway, Brooklyn 19, N. Y.

CUTTER LECTURE BY DR. SPENCE

The Harvard School of Public Health announces that Dr. James C. Spence, Professor of Child Health, University of Durham, England, will deliver the Cutter Lecture on Preventive Medicine on May 11, 1949, at 5 p.m. in Amphitheatre D of the Harvard Medical School. Dr. Spence has chosen as his subject, "Preventive Medicine: the Role of Parents in Child Health." The Cutter Lectures on Preventive Medicine have been held since 1912, according to the terms of the will of Dr. John Clarence Cutter, of the class of 1877, which directed that they should be "free to the medical profession and to the press." In addition, medical and public health students and others interested are cordially invited to attend.

NEW JERSEY REORGANIZATION ADVANCES

Reorganization plans of the New Jersey State Health Department were approved by the State Public Health Council in June, 1948. Steps in carrying out this plan became effective in January, 1949. The Bureau of Laboratories was organized to take over all laboratory functions of the department, hitherto scattered in several divisions or bureaus. The Laboratory Bureau has four sections, bacteriology, chemistry, pathology, and serology. A. J. Casselman, M.D., is the director of the Bureau of Laboratories.

Another bureau organized at that time was the Bureau of Preventable Diseases, comprising sections on alcoholism, communicable diseases (including tuberculosis and venereal diseases), cancer and malignant diseases, dental diseases, and rehabilitation. Carl E. Weigele, M.D., is the director of the reorganized bureau.

BCG VACCINATION FOR INDIAN CHILDREN

The first widespread program of vaccination with BCG (Bacillus Calmette-Guerin) for the prevention of tuberculosis among Indians of the United States will be carried out during April, May, and June by the U. S. Bureau of Indian Affairs. To carry out the program eight vaccination teams were employed and sent to the field beginning on March 15. Each team is composed of one physician, one public health nurse, and a recording clerk. The personnel of the eight teams

convened at Albuquerque, N. M., on March 20 for a ten day instruction period. Included in the group were a doctor and a nurse from Puerto Rico as observers. Technical assistance is provided by the Tuberculosis Control Division of the U. S. Public Health Service, and the vaccine is furnished by the Henry Phipps Institute of Philadelphia.

ENGINEER HALL IN IRAN

In line with President Truman's Inaugural address proposing that the United States give technical assistance to other nations, Lawrence B. Hall, Assistant Chief, Engineering Division, of the Public Health Service's Communicable Disease Center in Atlanta, Ga., left early in March for Iran on a 3 month assignment to help in that country's fight against malaria. From headquarters in Teheran he is supervising training of Iranian personnel in carrying out a DDT spraying program initiated by Justin M. Andrews, M.D., another Public Health Service Officer, following a recent survey.

CONFERENCE ON SMOKE PREVENTION

The Forty-second Annual Conference of the Smoke Prevention Association of America will be held in Birmingham, Ala., May 23 through May 27. The program includes discussions of various types of industrial smoke control problems plus a consideration of the medical aspects of air pollution. The final day of the Conference will be taken up with a visit to the underground gasification of coal experiment, Gorgas, Ala., where the Alabama Power Company will demonstrate features of this experiment. For further information write to D. A. Sullivan, Commonwealth Engineering Company, 72 West Adam Street, Chicago 90, Ill.

TEXAS HEALTH ACTIVITIES APPROVED

The Texas Public Health Association, at its annual meeting in February, 1949, adopted a resolution of commendation for the work of the Texas State Health Department through its staff and under the leadership of the Health Officer, George W. Cox, M.D. Special recognition was given to the addition of the Divisions of Cancer, Health Education, Mental Health, and Hospital Construction to the State Health Department during the past 12 years. Attention was called to the increased activities for the control of venereal diseases, tuberculosis, malaria, typhus, and plague, and the construction of 22 health center buildings and a main office building for the State Health Department during the same period.

In conclusion, the resolution stated:

"Now therefore be it Resolved, that we commend Dr. Cox for his extraordinary achievements; that we endorse his plans; that we give him a vote of confidence; and that we, the public health workers assembled here in convention, pledge our support to the continuation of his activities and policies which mean so much to the successful prosecution of a comprehensive public health program for all the citizens of Texas."

SPREAD OF POLIO BY SEWAGE HAS A COURT TEST

Irving D. Johnson, M.D., Marin County Health Officer, San Rafael, Calif., reports what is believed to be the first court test of an attempt to blame sewage as the direct cause of poliomyelitis.

The patient, a boy of 6 who had contracted polio in May, 1945, was one of 52 cases in Marin County during the epidemic of 1945. In the same year 898 cases occurred in California. The parents of the child attempted to collect $100,000 damages allegedly resulting from sewage in the residence which had overflowed in the basement. Judge Edward Butler presided in the Marin County Superior Court and denied a non-suit motion from the defendant for dismissal, based on lack of evidence and precedence in such cases. The court

gave way to the importance of such a test case and determined that the case should be decided by a jury.

The plaintiff contended that sewage had backed up in his basement on several occasions, in January and February and perhaps April, 1945. The parents claimed to have removed sewage from the basement with shovels, to have scrubbed down the floor with creosote and to have washed the floor with a hose. The child had played with toys in this basement. Among several expert witnesses was Dr. William McD. Hammon of the Hooper Foundation for Medical Research and Professor of Epidemiology at the University of California School of Public Health, who had studied the outbreak and who reached the conclusion that person-to-person spread was the most likely method of infection in this outbreak.

A jury of six men and six women deliberated 1½ hours and rendered a verdict of nine to three in favor of the defendant, the City of Mill Valley. Motion for a new trial was denied.

W. SCOTT JOHNSON

On March 13, 1949, the Association, and more particularly the Engineering Section, lost a strong supporter and friend through the death of W. Scott Johnson. It was almost a quarter of a century ago, 1925, that Mr. Johnson became a member of the Association. In 1933 he was elected a Fellow, and in 1946–1947 he served as Chairman of the Engineering Section Council. His influence was also felt through participation in committee and Section Council activities.

At the time of his death, Mr. Johnson was Chief Engineer and Director, Section of Environmental Sanitation, Missouri Division of Health, a position he had held since 1925. Under his guidance, the section had grown both in size and efficiency to become one of the better divisions of environmental sanitation in the country. His activities extended into other engineering fields, both state and national. The November, 1948, issue of the *Missouri Engineer* paid special tribute to Mr. Johnson upon the completion of 25 years' leadership in public health engineering in Missouri.

SOL PINCUS TO HEAD WHO SECTION ON ENVIRONMENTAL SANITATION

The appointment of Sol Pincus of New York, consulting engineer, as Head of the new Section on Environmental Sanitation for the World Health Organization, Geneva, Switzerland, was announced on April 4. Mr. Pincus left on that date for Geneva. The WHO has made environmental sanitation one of its six top priority programs for 1949.

Mr. Pincus, who is a native of Texas, is a graduate of the Columbia School of Engineering, and has served for two periods with the U. S. Public Health Service, principally in aiding states to develop sanitary engineering divisions. He served from 1935 to 1947 as Deputy Commissioner of the New York City Department of Health, and there directed sanitary engineering and food control activities until he returned to private practice.

LEGISLATIVE PROGRESS IN IDAHO

Public health in Idaho made important steps forward during the recent session of the State Legislature.

One of the foremost objectives of the legislative program of the Idaho Department of Public Health, under the leadership of L. J. Peterson, Administrative Director, was to carry out a proposal considered at the Rocky Mountain Conference on Local Health Units in Salt Lake City last October, which would permit county commissioners acting as county boards of health to make a one mill levy to be used solely and exclusively for local health services. Members of the Idaho delegation

attending this conference, representing varied organizations interested in good health, unanimously endorsed this proposal.

A bill for this purpose was introduced by the Public Health Committee of the House of Representatives and in passing both the House and the Senate received 95 favorable votes out of 103. It was signed by Idaho's governor in March.

Previously, the one mill proposal had been endorsed by the State Association of County Commissioners and Clerks, the Medical Association, the Dental Association, Anti-Tuberculosis Association, Congress of Parent-Teachers, the Junior Chamber of Commerce, Farm Bureau, Home Economics Association, the Idaho Division of the American Cancer Society, and other organizations interested in good health.

A second proposal endorsed at the Salt Lake City conference calling for an equalization fund for local health departments was not presented to the Legislature, principally because of federal legislation pending in Congress. It must be pointed out that the one mill levy will raise an estimated $500,000, approximately $1 per capita.

Other legislative achievements in which the Department of Public Health was interested include:

Approval of a uniform law on vital statistics; modernization of sanitation laws covering all types of eating and drinking establishments; reactivation of the public health industrial hygiene program; permission for counties, municipalities, and cities to vote on revenue bonds for construction of water and sewage treatment plants; additional powers in the protection of public water supplies. A bill requesting a state appropriation for financing a mobile x-ray unit was introduced but not passed.

Assistance was also given to the State Medical and Dental Associations in the approval of modern medical and dental practice acts. The dental act permits licensing of dental hygienists.

ACTING ON A REPORT

The six national nursing organizations have a joint committee on implementing the Brown report (*Nursing for the Future,* Esther Lucille Brown, Ph.D.). Its program is "to analyze and to plan toward the solution of major nursing service problems and to initiate action to meet present needs as well as long-range goals." It has distributed to the nation's nurses a study guide for use by local groups in analyzing community nursing needs and ways of meeting them.

The Chairman of the committee is Mary C. Connor, Research Associate of Teacher's College Division of Nursing Education at Columbia University. An executive committee of 7 members includes:

Ella Best, Executive Director, American Nurses' Association
Gladys Dondora, American Association of Industrial Nurses
Anna Fillmore, National Organization for Public Health Nursing
Adelaide A. Mayo, National League of Nursing Education
Mary M. Roberts, *American Journal of Nursing*
Alma Vessells, National Association of Colored Graduate Nurses
Dorothy Williams, Association of Collegiate Schools of Nursing

The Executive Secretary is Helen C. Goodale, and the headquarters office is at 250 W. 57th St., New York 19.

A subcommittee on School Data Analysis, under the chairmanship of Louise Knapp, director of the Washington University School of Nursing in St. Louis, is surveying nursing education resources. The results of a questionnaire study of nursing schools will be available in mid-summer. It is expected to furnish a base upon which "an efficient system of preparing nurses to meet the nation's nursing needs" can be planned.

MENTAL HYGIENE DIVISION IN A LOCAL HEALTH DEPARTMENT

Westchester County (N. Y.) is the only county in the state with a mental hygiene division in its health department. Serving a population of more than 300,000, the division has three clinics in different parts of the county. In 1948, a total of 1,900 interviews were held by these clinic staffs, doubling the demand of the previous year. The Health Commissioner, William A. Holla, M.D., reports that the entire department is becoming psychiatric-conscious. Through lectures and conference the bedside nurses and other workers are becoming aware of the mental health implications of their activities.

The division was first organized in 1946 to serve veterans, but children currently constitute 50 per cent of the case load, and the adults are both veterans and non-veterans.

The director of the division is Avraam T. Kazan, M.D. Its 1948 budget of nearly $65,000 was shared equally by the county and the state.

AMERICAN HEART ASSOCIATION BOARD APPROVES LOCAL HEALTH UNITS RESOLUTION

At a meeting on March 8, 1949, the Board of Directors of the American Heart Association approved the following resolution on local health units:

"The Board of Directors of the American Heart Association is keenly aware of the necessity for complete coverage of the Nation with full-time local health departments so staffed and financed that they may render the basic public health services commonly accepted as the right of all citizens. With knowledge of the present deficiencies in the quantity, quality and distribution of such services the Board urges its membership and its affiliate bodies to initiate and give active support to all appropriate measures that will obtain for their communities competent health departments.

"The Board further recognizes the need for financial assistance to many local communities for providing the services and facilities they require and so, to assure a strong nation-wide public health structure, approves in principle federal legislation designed to make such financial assistance available.

The American Heart Association is in full accord with the program of the National Health Council and its National Advisory Committee on Local Health Units for joining together, in coöperative action, the professional and lay forces to gain the desirable objective of adequate full-time local health services for all our people."

MEDICAL SERVICE CORPS APPOINTEES

When the Medical Service Corps was organized in 1947, 4 sections of the corps were established. The chiefs of 3 of these sections were appointed recently in ceremonies held at the Office of the Surgeon General, U. S. Army, in Washington. The recently appointed sections chiefs were: Lt. Col. Charles S. Gersoni, Medical Allied Sciences Section; Major Raymond J. Karpen, Sanitary Engineering Section; and Major John V. Painter, Pharmacy, Administration and Supply Section.

The present Medical Service Corps has approximately 750 officers, of which 640 are in the Pharmacy, Administration and Supply Section, 98 in the Medical Allied Sciences Section, 16 in the Sanitary Engineering Section, and 1 in the Optometry Section.

BRUCE MEMORIAL AWARD TO DR. BAYNE-JONES

The American College of Physicians at its meeting in New York late in March awarded the Bruce Memorial Award to Dr. Stanhope Bayne-Jones, the President of the joint administrative board of the New York Hospital-Cornell Medical Center, New York City, "for outstanding achievement in preventive medicine."

The James D. Bruce Memorial Medal was presented by Dr. Walter W. Palmer, President of the College, at its annual convocation. The citation described Dr. Bayne-Jones as "an inspiring teacher" at Johns Hopkins University, the University of Rochester, and

Yale University, where he had an important part in shaping the careers of many young physicians. Dr. Bayne-Jones during World War II was a Brigadier General in the Army Medical Corps and was Deputy Chief of the Preventive Medicine Service in the Office of the Surgeon General.

CORRECTION — DR. HUGH S. CUMMING A GRADUATE OF THE UNIVERSITY OF VIRGINIA MEDICAL SCHOOL

The editorial in the February issue of this *Journal*, page 225, stated that the late Dr. Hugh S. Cumming had graduated from the University College of Medicine at Richmond.

It now appears that, like other medical graduates in the 1890's, Dr. Cumming graduated from two medical schools. It appears that he first graduated from the University of Virginia Medical School at Charlottesville, and later received the second M.D. degree from the University College of Medicine at Richmond. The University of Virginia very naturally claims Dr. Cumming as an alumnus.

CONFERENCE OF PROFESSORS OF PREVENTIVE MEDICINE

Leland W. Parr, Ph.D., Chairman of the 1949 Conference of Professors of Preventive Medicine, has announced that the conference will meet on Monday, October 24, in New York City at the time of the 77th Annual Meeting of the American Public Health Association. The conference was organized in 1942 in St. Louis at the meeting of the A.P.H.A. that year. Its purpose is to promote fuller acquaintanceship among the men and women, part- or full-time teachers of hygiene, preventive medicine, and public health in the medical schools of the United States and Canada.

Dr. Parr, who is Professor at the George Washington University School of Medicine, Washington, and the Secretary, who is David D. Rutstein, M.D., 25 Shattuck Street, Boston, will welcome suggestions regarding the 1949 program.

ACADEMY OF PEDIATRICS REPORTS ON STUDY AND PROGRAM

The findings of a three year study of child care and plans of a nation-wide program for improvement of child health were announced by the American Academy of Pediatrics' president, Warren R. Sisson, M.D., of Boston, at a meeting in New York on April 2. Terming the study the most comprehensive inventory of the nation's health services ever undertaken by any organization, Dr. Sisson said that factual information collected from each of the 3,000 counties of the United States will enable health planners to know the individual needs of local communities.

"The program of the Academy at national and state levels is based on recommendations of the doctors themselves and will continue to call for coöperative effort on the part of practising physicians, health officials and individuals, nationally and in even the smallest communities. It is designed to put modern techniques and facilities more conveniently at the disposal of the physician, particularly the general practitioner." The family doctor, far from becoming extinct, according to the findings, is the bulwark of child care in this country. Two-thirds of the 116,000 practising physicians in the United States are general practitioners.

Although America's medical care of its children is among the best in the world, and the health level is the best in history, serious gaps and deficiencies exist; 3 babies died for every 2 soldiers killed in action during a year of World War II. In some countries where modern medical services are scarce, 5 times as many infants die as in more favored communities. While infant mortality's national average stands the lowest in history, there is variation from county to county and from state to state. In

one state it is as high as the national average was a quarter-century ago. The geography of health follows closely the geography of medical services.

The Academy's program proposes to utilize university medical centers as hubs from which would be "beamed" post-graduate teaching and metropolitan medical services directly into communities isolated from specialist care, clinic care and the highly skilled diagnostic and treatment services found in the cities. In this sense 2,000 of the 3,000 counties of the nation are isolated.

Individual state reports and recommendations are being published. State councils and committees representative of medical, health and lay groups are being created and stimulated to provide increased public health services and programs to combat the heavy toll of premature births and rheumatic fever.

Winthrop Rockefeller, Chairman of the Board of Trustees of New York University-Bellevue Medical Center; Dr. Thomas Parran, Dean of the new Graduate School of Public Health of the University of Pittsburgh; and Dr. R. L. Sensenich, President of the American Medical Association, as guest speakers praised the Academy for its decision to carry out its own recommendations based on the findings; for the constructive and non-controversial planning for the overall improvement of child health and for the unique move whereby the doctors requested and received the active coöperation of the Public Health Service and the Children's Bureau in the conduct of the study.

NEW MEXICO PUBLIC HEALTH ASSOCIATION

The 21st Annual Meeting of this A.P.H.A. Affiliated Society in New Mexico was held at Roswell, March 23 to 26, and the following officers were elected to serve for the forthcoming year. The offices of Librarian and Delegate to the United States-Mexico Border Public Health Association are newly created.

President—H. D. Newman, M.D.
President-elect—Myrtle Greenfield
Vice-President—Jean Prager
Librarian—Helen M. Boss
Representative on A.P.H.A. Governing Council—Billy Tober
Delegate to Western Branch, A.P.H.A.—Mary Pollard
Delegate to U. S.-Mexico Border Public Health Assn.—Eunice Vandervoort
Secretary-Treasurer—Mary M. Gilliland

TEXAS PUBLIC HEALTH ASSOCIATION

The Texas Public Health Association held its 1949 Annual Meeting in San Antonio from February 20 to 23. The registered attendance was over 500. New officers were elected as follows:

President—William R. Ross, M.D.
President-elect—Barnie Young
1st Vice-President—Graham Smoot
2nd Vice-President—Elvira Oetken
Executive Secretary—Earle W. Sudderth

PUERTO RICO PUBLIC HEALTH ASSOCIATION

The Eighth Annual Meeting of the Puerto Rico Public Health Association was held February 9–12 at the School of Tropical Medicine in San Juan. The registration was larger than at previous meetings and all sessions were well attended. The new officers of this society are as follows:

President—Juan A. Pons, M.D.
President-elect—Manuel A. Perez
Vice-President—Emilia Figueroa
Treasurer—Olga Martinez
Secretary—Raefael Pirazzi
Sub-secretary—Carmen Acevedo
Representative on the Governing Council, A.P.H.A.—Guillermo Arbona, M.D.

Among special guests from outside the Island were Herman E. Hilleboe, M.D., Commissioner of Health of New York State; John B. Hozier, M.D., Senior Surgeon, U. S. Public Health Service, New Orleans; Andrew J. Krog of New York; Edward G. McGavran, M.D., Dean of the School of Public Health, University of North Carolina; William

McKee Germain, M.D., Professor of Pathology, University of Cincinnati; John S. Moorhead, M.D., Commissioner of Health of the Virgin Islands; Glenn S. Usher, M.D., Venereal Disease Consultant, U. S. Public Health Service, New Orleans.

HEALTH EDUCATION WORKSHOPS

Following is a summary of announcements of a number of health education seminars or workshops being held during the summer of 1949. No attempt has been made to secure complete information on such courses. Information is presented about those whose material has come to the offices of the Association without solicitation:

Arizona—Arizona State College, Tempe, June 20–30—Second annual health educational workshop for school administrators and supervisors, 2 points credit. Cosponsors are the Arizona State Health Department and the U. S. Children's Bureau, with the Arizona and American Medical Associations as coöperating agencies. Consultants to be present for the workshop are:

T. H. Butterworth, U. S. Public Health Service
Donald Dukelow, M.D., American Medical Association
Charlotte Leach, National Tuberculosis Association
John L. Miller, Superintendent of Schools, Great Neck, N. Y.

The director of the workshop is Frank R. Williams, Director of Health Education, Arizona State Health Department, Phoenix. Presumably information on fees, housing, etc., are available from him.

Connecticut—Yale University—Department of Education, Graduate School in coöperation with the University Department of Public Health—and several official and voluntary agencies including the State Health Department, June 27–August 5 plus 2 weeks for the preparation of term papers and reports on projects. Graduate seminar in health education designed to meet the needs of both elementary and secondary school teachers. Workshop techniques will be used enabling each student to give special attention to his particular problems.

Represents 8 points of credit.

Tuition is $120. Some scholarships are available for Connecticut personnel. Candidates for an advanced degree at Yale will need to meet the usual University admission requirements; those not degree candidates need only to include with their applications a one page summary of their particular problems and a letter of recommendation from school principal or superintendent outlining their present or contemplated health education responsibilities.

Applications should be sent to Clyde M. Hill, Chairman, Department of Education, Yale University, New Haven. Scholarship applications to Scholarship Committee, Connecticut Tuberculosis Association, 43 Farmington Avenue, Hartford, Conn.

Massachusetts — Harvard University School of Public Health, Boston, July 11–23. Workshop in Nutrition Education, to acquaint persons in different areas of the United States with research programs and nutrition education for public schools; financed by grants from the Nutrition Foundation, Inc., and Swift and Co. Limited to 20 to 25 persons selected from those responsible for the health and education programs in their own schools. The same group will be brought back for purposes of evaluation in 1950. Transportation and expenses are on a scholarship basis. Apply Elizabeth Lockwood, Ph.D., Department of Nutrition, 695 Huntington Avenue, Boston 15.

New York—New York University, New York City, 3rd Annual Health Education Institute: School and Community Problems in Tuberculosis Education. August 15–September 9. Credit 2 to 6 points. Tuition $15.50 per point.

Registration $3.00. Apply Dr. Morey R. Fields, Department of Health and Physical Education, New York University, Washington Square.

New York—Syracuse University, Syracuse, July 5–23. Health education workshop for those responsible for or contributing to the secondary school health program. Credits 3 points, Tuition $51.

August 15–27, with the coöperation of the New York State Committee on Tuberculosis and Public Health, Institute for Tuberculosis Workers, Credit 2 points. Limited number of out-of-state workers accepted. Apply John Shaw, Chairman, Division of Teacher Education, Syracuse University, Syracuse, N. Y.

Ohio—University of Cincinnati, three consecutive Health Education Institutes:

Health Education—June 21–June 26
Social Hygiene—June 28–July 2
Mental Hygiene—July 5–July 10.

Fees: Per credit hour

Resident—Undergradute $7.50; Graduate $10.00
Non-resident — Undergraduate $9.00; Graduate $11.00

Some scholarships are available. Apply Dr. J. R. Heller, Medical Director, Division of Venereal Diseases, U. S. Public Health Service, Washington, D. C. For other details apply Dean, Summer School, University of Cincinnati, Cincinnati, 20.

Oklahoma — University of Oklahoma, Norman, June 20–July 28 in coöperation with State Departments of Education and Health. Workshop to develop materials for a curriculum in health education for elementary schools. Enrollment limited to 25 or 30. Inquire Dr. Laurence T. Rogers, Faculty Exchange, University of Oklahoma, Norman.

Pennsylvania—University of Pennsylvania, Philadelphia, June 27 to July 29, Institute of Health & Human Relations. Joint sponsorship of U. S. Public Health Service, American Social Hygiene Association and Pennsylvania State Health Department. Five semester credit hours and tuition $110. Registration limited to 50 students. Dr. J. H. Stokes, Director, Institute for the Study of Venereal Disease, University of Pennsylvania Hospital, 36th and Spruce Streets, Philadelphia 4. For scholarships apply Dr. Heller as above.

Rhode Island—Rhode Island State College, Kingston. Courses on Education for Family Life, July 5–August 12. Tuition $8.00 per credit hour; $10.00 non-residents. Apply Director of Summer School, Rhode Island State College, Kingston

Washington—University of Washington, Seattle, June 20–July 20. Sponsored jointly by the Department of Public Health and Preventive Medicine of the Medical School, the College of Education, School of Nursing Education, and the Department of Health and Physical Education. Two courses directed by Dr. Dorothy Nyswander of the University of California School of Public Health as follows:

1. *Health Education*—designed for classroom teachers, special teachers of health subjects, public health nurses, and school administrators.
2. *Public Health Program*—planned for school administrators and school health coördinators. Deals with the place of the health program in the total school program, administrative problems of the school health program, and the relationship of the school health program to the whole community health program.

The two courses follow each other from 8 to 10 in the morning, Monday to Friday. Each carries 2½ hours of credit in education.

For details as to tuition, housing arrangements, entrance requirements, etc., inquire University of Washington Summer School, Seattle.

RECENT ALCOHOL RESEARCH EVENTS

Two changes in organizations dealing with the problem of alcoholism took place early in the current year. At a special meeting in January the membership of the Research Council on Problems of Alcohol voted to transfer its research operations and assets to the National Research Council and its public informational and educational publications to the Division of Mental Hygiene of the U. S. Public Health Service. In commenting on this decision the President, A. J. Carlson, M.D., said, "The decision of these two national agencies to concern themselves with the problems of alcohol is a clearcut reflection of the progress made in this field over the past decade."

For the past 11 years the Council on Problems of Alcohol has furnished leadership in developing state and local medical care programs for alcoholics. It has stimulated research on the causes and treatment of problem drinkers. It is at present supporting a 5 year research and treatment project on alcoholism at the Cornell-New York Hospital Medical Center in New York; a study of the biochemical factors in problem drinking, at the University of Texas Biochemical Institute; a study of the endocrinological factors at the New York University-Bellevue Hospital Medical Center; a study of allergic factors at the University of Washington Medical School; and a treatment project planned for the School of Medicine of either the University of Chicago or University of Illinois. These projects are now under the supervision of the National Research Council, and its Chairman of the Division of Medical Sciences, is Lewis H. Weed, M.D.

In this transfer of assets the New York Office of the Research Council on Problems of Alcohol was closed. The former director, Joseph Hirsh, is now a member of the Medical Advisory Commission, Division of Alcohol Studies and Rehabilitation, Virginia State Health Department.

At about the same time an Organization Committee for Research on Medical Treatment of Alcoholic Patients was formed. Its purpose is to explore fully the toxic properties and therapeutic value of a drug known as tetraethyl thiuram disulfide. Used in the vulcanization of rubber, there have been reported instances of its creating an intolerance for alcohol, and has been used in the treatment of alcoholics in Denmark and Sweden. The new committee will carry forward research begun by H. Brieger, M.D., Assistant Professor of Preventive Medicine, Jefferson Medical College, whose report indicates the need for further investigation before the drug can be considered safe for the treatment of alcoholics.

The Chairman of the Organization Committee is Edwin G. Zabriskie, M.D., Professor Emeritus of Clinical Neurology, Columbia University College of Physicians and Surgeons. His six associates are all New York physicians. The committee is trying to raise $50,000 and will begin its research as soon as $25,000 is available. Temporary offices are at 143 East 39th St., New York City, and the Acting Executive Secretary is Basil G. Eaves.

PERSONALS

VIRGINIA ARNOLD, Nurse Officer, Office of International Health Relations, U. S. Public Health Service, attended the 3rd session of the United Nations Commission on the Status of Women, at Beirut, Lebanon. March 21–April 8, as adviser to the United States delegation on health, education, and nursing.

JOHN A. BARGER, M.D.,† formerly with the Bureau of Preventable Diseases, Florida State Board of Health has been appointed Assistant Director of Public Health, Norfolk, Va.

CHARLES P. BERGTHOLDT. M.P.H.,†

formerly Assistant Director of the Division of Industrial Hygiene, Nebraska State Department of Health, Lincoln, became Industrial Hygienist at the U. S. Naval Gun Factory, November 1, 1948, with headquarters in the Medical Department of the U. S. Naval Gun Factory, Washington 25, D. C.

GEORGE F. CAMPANA, M.D.,* most recently a District Health Officer of the Massachusetts Department of Public Health, became Health Officer of Milford, Conn., on March 1.

FILIBERTO RAMIREZ CORRIA, who since 1933 has been pathologist at the Finlay Institute in Havana, Cuba, has been appointed Director General of the Finlay Institute effective January 21.

MARY E. CHAYER, R.N.,* has been promoted to a full professorship in nursing education at Teachers College, Columbia University, New York City, effective July 1.

JAMES GORDON CUMMING, M.D., Dr. P.H.,† has retired, effective March 1, as Director of the Bureau of Preventable Diseases of the District of Columbia Health Department after 24 years of service. Dr. Cumming's career includes the directorship of the Pasteur Institute, University of Michigan; directorship of the Bureau of Communicable Diseases, California State Department of Health; Health Officer of Philadelphia, Pa., and long service in the Armed Forces.

DONALD G. EVANS, M.D.,* formerly Director of the Washington State Department of Public Health and now in private practice, is the new president of the King County (Washington) Anti-Tuberculosis League.

HAROLD B. GOTAAS, Sc.D.,* Professor of Sanitary Engineering, University of California, Berkeley, since 1946, was recently appointed Chairman of the Division of Civil Engineering. During the recent war he was assigned by the Army to the Institute of Inter American Affairs as Director of Health and Sanitation and later as President.

FREDERICK O. GRAEBER, M.D., M.P.H., has been appointed the first full-time Malheur County, Oregon, Health Officer with headquarters in Vale.

RALPH GREGG, M.D., who first joined the Service in 1928, has been made Assistant Chief of the Foreign Quarantine Division of the U. S. Public Health Service. Dr. Gregg served abroad with the Foreign Quarantine Division at American Consulates in Poland, Italy, Ireland, and England, in charge of medical examination of aliens. He succeeds FREDERICK W. KRATZ, M.D., who has been assigned to the Public Health Service Office, Region 3 in Washington, D. C., as Program Director, Hospital Facilities Division.

SIDNEY V. HAAS, M.D., was recently honored with a Golden Book of World Tributes and a luncheon at the New York Academy of Medicine for his contribution to pediatrics, with particular reference to his original and pioneering work in celiac disease and in the treatment of hypertonic infants.

MARGUERITE F. HALL, Ph.D.,* formerly Associate Professor of Public Health Statistics, University of Michigan, has been appointed to direct the Bureau of Vital Statistics and Administration in the New Jersey State Department of Health.

BERNARDO A. HOUSSAY, M.D., of Argentina, co-winner of the 1947 Nobel Prize for physiology and medicine, is in the United States as a Special Research Fellow of the Public Health Service to do research for 3 months at the National Institutes of Health in Bethesda, Md.

JULIA JANE HEREFORD,† Associate Pro-

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* Fellow A.P.H.A.
† Member A.P.H.A.

fessor of Nursing, has been appointed to serve as Associate Dean of the School of Nursing at Vanderbilt University, Nashville, Tenn., until July 1, when she will become Dean on retirement of Frances Helen Zeigler.

KENNETH D. JOHNSON, General Counsel of the National Security Resources Board, has been appointed Dean of the New York School of Social Work succeeding WALTER W. PETTIT, who retired.

CAROLYN E. KINNEY has been appointed as Nurse Consultant in Mental Hygiene, Kansas State Board of Health, coming to her new position on completion of the 16 month course for Mental Hygiene Nurse Consultants at Teachers College, Columbia University.

BETTY MALINKA,† Indiana Field Representative of the National Foundation for Infantile Paralysis and two term member of the Indiana Legislature, recently won the 1948 Oberlin Award of the Lake County (Indiana) Medical Society for obtaining "more and better health legislation in the 1947 legislature than in any previous session."

LAD R. MEZERA, M.D.,† recently Assistant Director of the Maricopa County (Arizona) Health Unit, is now Acting Director of Maternal and Child Health, Arizona State Health Department.

ELEANOR L. MCKNIGHT, M.S.,† has been appointed Chief of the Division of Nutrition, Bureau of Food Control, Baltimore Department of Health.

PABLO MORALES-OTERO, M.D.,* Director of Puerto Rico's School of Tropical Medicine, has been appointed to a chair on the Medical Faculty of Columbia University in New York.

JAMES J. QUINLIVAN, M.D.,† has received permanent appointment as Assistant Director of Local Health Administration in the New York State Health Department's Division of Local Health Services. He served as acting Assistant Director from March, 1948.

WILLARD C. RAPPLEYE, M.D.,† who has been Dean of Columbia University College of Physicians and Surgeons, New York City, and of related schools, has been appointed Vice-President of Columbia University in charge of medical affairs.

DAVID RESNICK,* New York Public Relations Counsellor, has been retained as Consultant to the American Hearing Society of Washington, D. C.

BROOKS RYDER, M.D.,† formerly District Health Officer, Quincy office, Massachusetts Department of Public Health, has joined the Bingham Associates Fund in Boston to carry on the medical extension work of Tufts Medical School and the Joseph H. Pratt Diagnostic Hospital.

CLAUDE A. SELBY, M.D.,† formerly Public Health Consultant with the War Assets Administration, has been appointed to the directorship of the Cameron County (Texas) Health Unit.

GEORGE A. SILVER, M.D., M.P.H.,† was recently appointed Health Officer of the Eastern Health District in Baltimore, succeeding HARRY L. CHANT, M.D., M.P.H., who has become Director of the Medical Care Clinic of Johns Hopkins Hospital, Baltimore.

EDWARD B. SINCLAIR, M.D., has been appointed crippled children physician, Connecticut State Department of Health. After discharge from the army in 1946, Dr. Sinclair was Medical Consultant for Vocational Rehabilitation, Veterans Administration office, Providence.

ALBERT SZENT-GYORGYI, M.D., Professor of Biochemistry, University of Budapest, and 1937 Nobel prize winner in Medicine for discoveries result-

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* Fellow A.P.H.A.
† Member A.P.H.A.

ing in the isolation and identification of vitamin C, and for his fundamental work on biological oxidation, is working as a Special Research Fellow at the National Institutes of Health, Bethesda, Md.

MATTHEW TABACK, M.A.,† has been appointed first Director of the Bureau of Biostatistics in the Statistical Section, Baltimore Health Department. The Statistical Section is under the direction of W. THURBER FALES, D.Sc.*

PAUL W. THURSTON has been appointed Director of Community Case Finding for the Queensboro Tuberculosis and Health Association, New York.

L. O. TUCKER is the new advisory milk sanitarian for the Washington State Health Department succeeding JOHN B. Drake, who has resigned to teach in the Division of Public Health and Preventive Medicine of the University of Washington Medical School.

VIRGINIA STATE HEALTH DEPARTMENT—PERSONNEL CHANGES

FRED C. HEATH, M.D.,† Health Officer of the Giles-Montgomery-Radford Health District, and

MILDRED ESTHER SCOTT, M.D.,† Health Officer of the Rockingham-Harrisonburg Health Department are studying at Johns Hopkins School of Hygiene and Public Health.

GEORGE E. WATERS, M.D., was appointed Health Officer of the Rockingham-Harrisonburg Health Department effective January, 1949.

J. A. FIELDS, M.D., resigned as Health Officer of the Halifax Health District, as of November, 1948.

R. M. WILSON, M.D., became Health Officer of the Henrico County Health Department in December, 1948.

J. C. ELLINGTON, M.D.,* recently assumed his duties as Health Officer of the City of Lynchburg.

J. E. SMITH, veteran of World War II, has been appointed sanitarian for the County of Chesterfield.

ROBERT M. BEATTIE, who served in the United States Navy during World War II, has been appointed sanitarian of Nottoway County.

E. E. RENN, formerly with the malaria control project in Norfolk, has been made sanitarian of Warwick county.

EDWIN H. WEST, M.D., on February 15, became Assistant Director of Tucson-Pima (Arizona) Health Unit succeeding C. R. KROEGER, M.D.,† who resigned to become Health Officer of Imperial County, California.

WEST VIRGINIA—PERSONNEL CHANGES:

ISABELL DOROTHY TAYLOR has been appointed Medical Social Consultant in Maternal and Child Health, State Department of Health.

PAUL D. BIBB is now Hospital Field Representative of the State Department of Health, succeeding A. J. WILLIAMSON who resigned to become Administrator of the Grafton City Hospital.

BERTHOLD ZOFFER,† Senior Assistant Surgeon, has been loaned to West Virginia by the U. S. Public Health Service as Medical Officer in charge of the West Virginia Medical Center in South Charleston.

Deaths

ANNA M. GOVE, M.D.,† Physician and Professor Department of Health, Woman's College University of North Carolina, Greensboro. (Unaffiliated.)

EDGAR M. GRIFFITH, M.D.,† Health Officer Cass County Health Unit, Harrisonville Mo. (Health Officers Section.)

ROY W. MORRISON, Ph.D.,† University of Florida, College of Education, Gainesville. (Public Health Education Section.)

CONFERENCES AND DATES

American Association of Social Workers. Cleveland, Ohio. June 10–12.

American Physical Therapy Association. Copley Plaza Hotel, Boston, Mass. June 19–24.

American Public Health Association—77th Annual Meeting, New York, N. Y. October 24–28.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association:
Annual Conference. Stevens Hotel, Chicago, Ill. May 30–June 3.
New Jersey Section Outing. June 23.
Pacific Northwest Section May 12–14.

Arizona Public Health Association. Hassayampa Hotel. Prescott, Ariz. May 12–13.

Association for Physical and Mental Rehabilitation. Third Annual Convention. Hotel New Yorker, New York, N. Y. May 18–21.

Canadian Public Health Association. 37th Annual Meeting. Halifax. June 28–30.

Colorado Public Health Association. Vail Hotel, Pueblo, Colo. May 23–24.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Connecticut Public Health Association. Hartford, Conn. June 14.

First Congress International Hospital Association. Amsterdam and Groningen, Holland. May 30–June 4.

Florida Public Health Association. George Washington Hotel. West Palm Beach, Fla. October 6–8.

Georgia Public Health Association. DeSoto Hotel, Savannah, Ga. May 2–4.

Health Officers and Public Health Nurses of New York State. Lake Placid, N. Y. June 20–23.

Idaho Public Health Association. Legion Hall, Twin Falls, Ida. May 23–24.

International Association of Milk and Food Sanitarians. Deschler-Wallick Hotel, Columbus, Ohio. October 20–22.

International Congress on Rheumatic Diseases. New York, N. Y. May 30–June 3.

Iowa Public Health Association. Des Moines, Iowa. June 2–3.

Massachusetts Public Health Association. Amherst, Mass. June 15–17.

Michigan Public Health Association. Hotel Statler. Detroit, Mich. November 9–11.

Middle States Region Health Educator Conference. Milwaukee, Wis. May 11–13.

Minnesota Public Health Conference. Nicollet Hotel. Minneapolis, Minn. September 30.

Missouri Public Health Association. Jefferson City, Mo. May 4–6.

National Association of Sanitarians. Biltmore Hotel, Los Angeles, Calif. August 15–18.

National Conference of Social Work. Cleveland, Ohio. June 12–18.

National Convention of the American Red Cross. Atlantic City, N. J. June 27–30.

National Education Association. Hotel Statler, Boston, Mass. July 4–8.

National Social Welfare Assembly. New York, N. Y. May 18.

Royal Sanitary Institute. Brighton, England. May 23–27.

Society of American Bacteriologists. Cincinnati, Ohio. Hotel Netherland Plaza. May 16–20.

South Carolina Public Health Association. Gloria Theater. Myrtle Beach, S. C. May 30–June 1.

Third Inter-American Congress of Radiology. Santiago, Chile. November 11–17.

Washington State Public Health Association Spokane, Wash. September 19–20.

Western Branch American Public Health Association. Biltmore Hotel, Los Angeles, Calif. May 30–June 1.

West Virginia Public Health Association. Daniel Boone Hotel, Charleston, W. Va. June 2–3.



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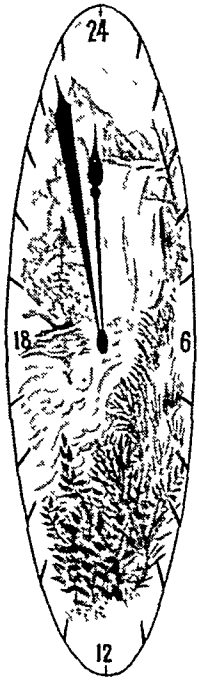
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* American Journal of Public Health, August 1945.

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Members of the committee who have contributed and their subjects are as follows:

Psittacosis
K. F. Meyer, Ph.D., M.D. and B. Eddie, Dr.P.H.

Lymphogranuloma Venereum
Geoffrey Rake, M.B.

Trachoma and Inclusion Blennorrhea
Phillips Thygeson, M.D.

Variola and Vaccinia
Robert F. Parker, M.D.

Influenza
George K. Hirst, M.D.

Primary Atypical Pneumonia
A. E. Feller, M.D.

Mumps
John F. Enders, Ph.D., and Jeanette H. Levens, M.P.H.

Poliomyelitis
John R. Paul, M.D.

Encephalitis (Arthropod-borne Virus Encephalitides and Lymphocytic Choriomeningitis)
William McD. Hammon, M.D., Dr.P.H.

Rabies
H. N. Johnson, M.D., M.B., and Thomas F. Sellers, M.D., M.Sc.

Herpes Simplex
T. F. McNair Scott, M.D.

Yellow Fever
John C. Bugher

Dengue
Albert B. Sabin, M.D.

Phlebotomus (Pappataci or Sandfly) Fever
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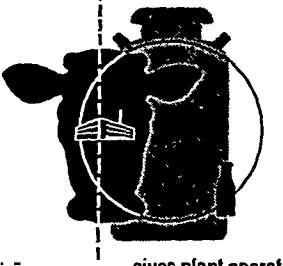
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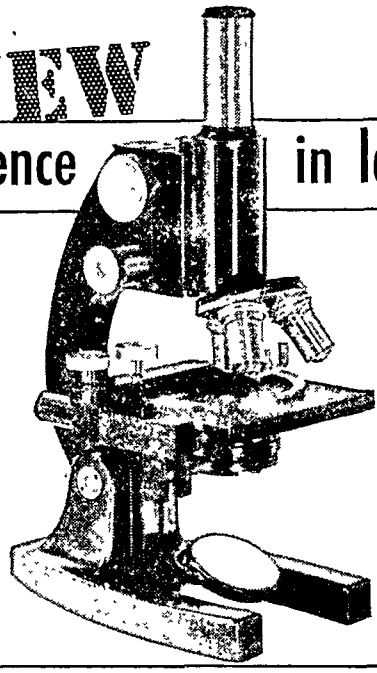
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A.P.H.A.-Year Book 1947–1948. 112 pp. $1.00.

Part II. Appraisal of Dwelling Conditions. Director's Manual; Field Procedures; Office Procedure (1946). $5.00.

Basic Principles of Healthful Housing. 2nd ed. rev. 1946. Report of the Committee on the Hygiene of Housing. 34 pp. $.40.

Control of Communicable Diseases, The. 6th ed., 1945. Size 4¾" x 7¾". 149 pp. $.35.

Diagnostic Procedures and Reagents. Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. 2nd ed., 1945. $4.00.

Diagnostic Procedures for Virus and Rickettsial Diseases. 1948. 347 pp. $4.00.

Directory of Public Health Statisticians, 4th Ed. Oct. 1948 (free to members of the Vital Statistics Section) $1.00.

Health Practice Indices, 1943–1946. A collection of charts showing the range of accomplishment in various fields of community health service, 1947. 77 pp. Free.

Membership Directory. 1946. (Free to A.P.H.A. members.) $5.00.

Methods for Determining Lead in Air and in Biological Materials. 1944. 41 pp. $.75.

Occupational Lead Exposure and Lead Poisoning. 1943. 67 pp. $.75.

Panum on Measles. By P. L. Panum (translation from the Danish). Delta Omega ed., 1940. 111 pp. $2.50.

Photographic Sediment Chart, 1947 ed., $1.50.

Planning the Neighborhood. Committee on the Hygiene of Housing, 1948. 89 pp. $2.50.

Proceedings of the National Conference on Local Health Units. Supplement to A.J.P.H., Jan. 1947. 160 pp. Covered, $1.00.

Proceedings of the Princeton Conference on Local Health Units, September 1947. $.50.

Public Health: A Career with a Future. Rev. ed. 1948. $.15.

Public Health in Midstream. Papers presented at the Special Sessions at Atlantic City. Supplement to A.J.P.H., Jan. 1948. $1.00.

Shellfish and Shellfish Waters, Recommended Methods of Procedure for Bacteriological Examination of. 1947. 12 pp. $.25.

Standard Methods for the Examination of Dairy Products, 9th ed., 1948. 373 pp. $4.00.

Standard Methods for the Examination of Water and Sewage. 9th ed., 1946. 286 pp. $4.00.
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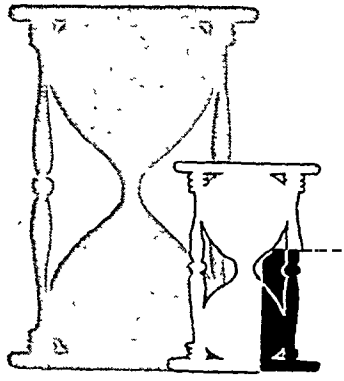
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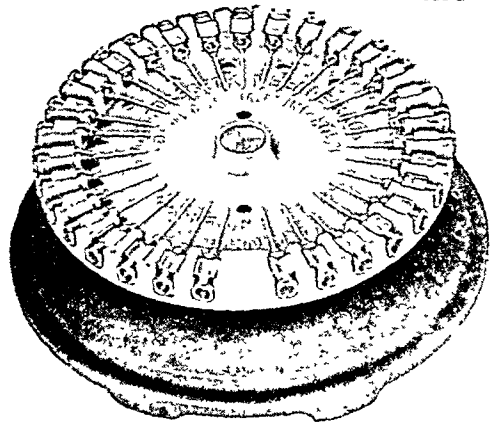
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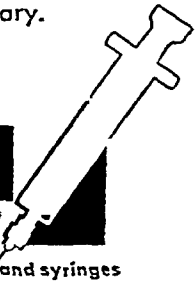


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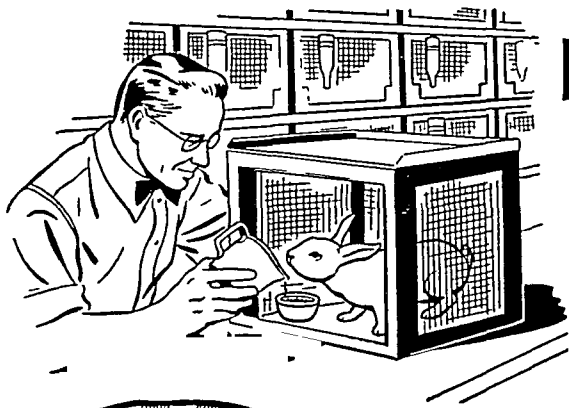


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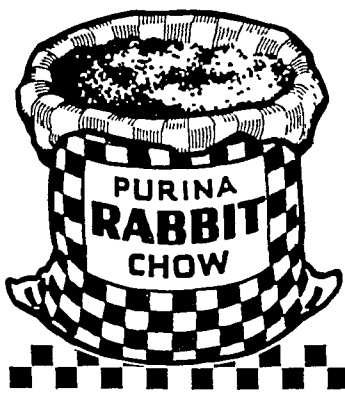
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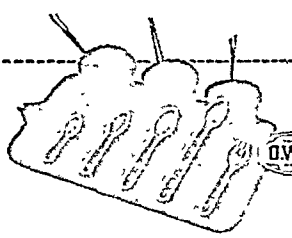


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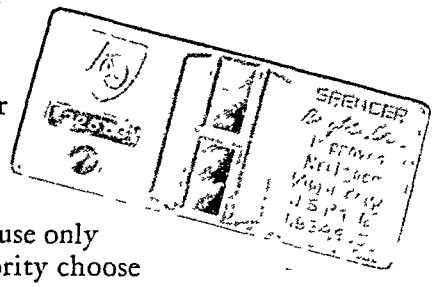
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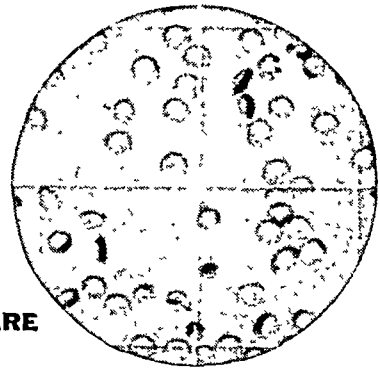
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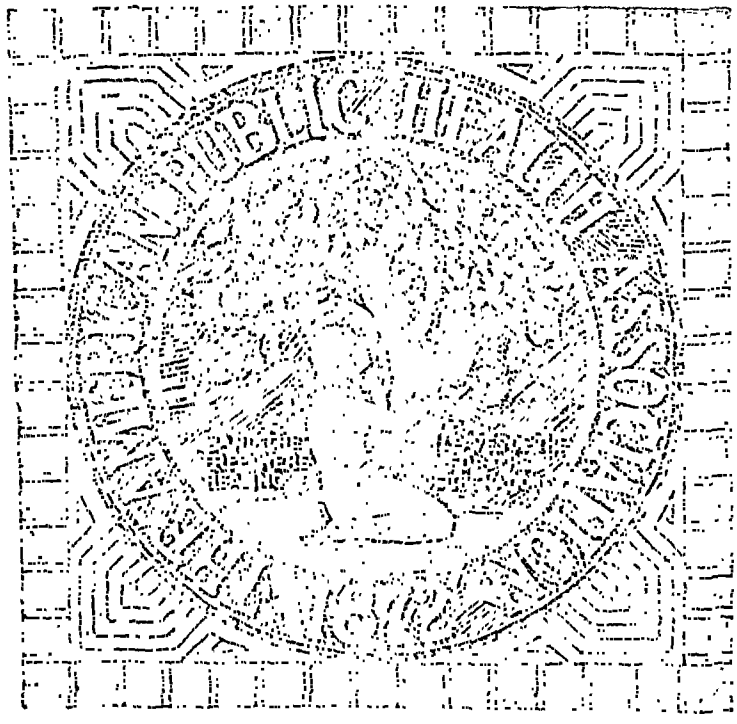
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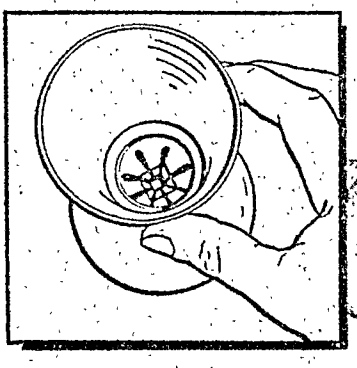
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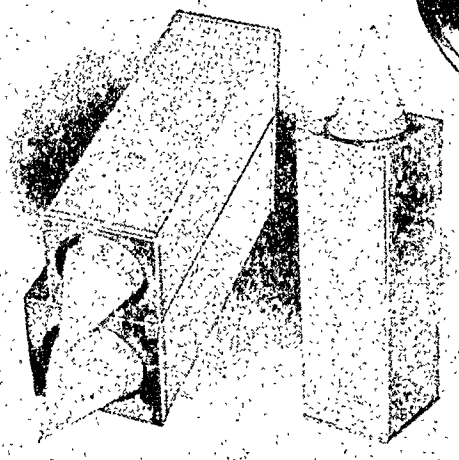
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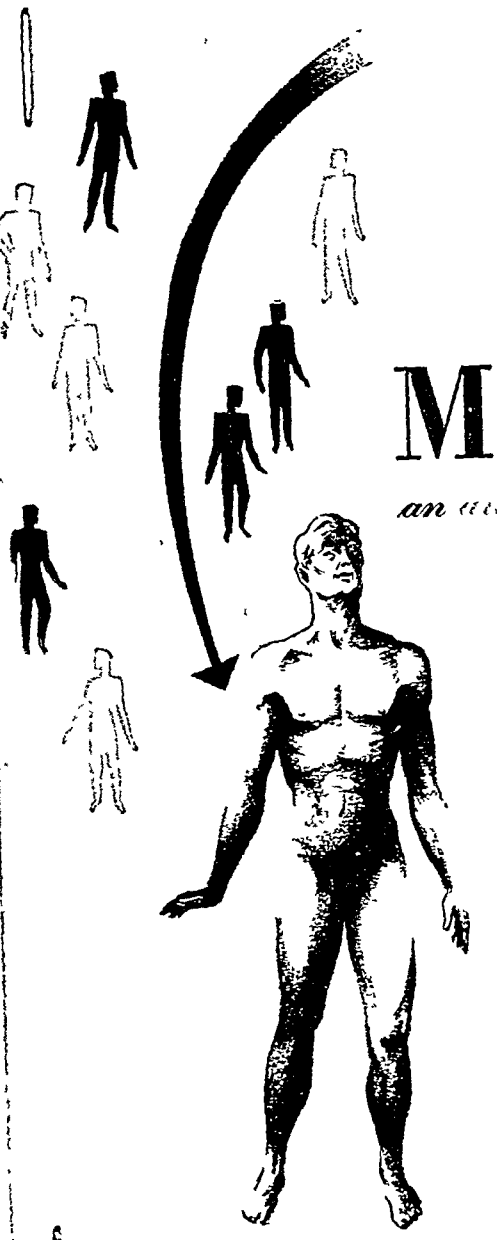
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EFFECTIVE One PENETTE maintains a therapeutic concentration of penicillin in the saliva throughout the recommended half-hour chewing period, or up to as much as 2 hours if chewing is continued. Wide dispersion of penicillin throughout the entire oral cavity is assured by slow and regular chewing. A total of 4 to 6 PENETTES per day, combined with basic dental procedures as indicated, will normally arrest the majority of intraoral infections due to Vincent's or other penicillin-sensitive organisms within 24 to 48 hours.

Why not test PENETTES' *advantages yourself? A penny postcard will bring you a sample.*

Each Bristol PENETTE contains 10,000 units of Crystalline Potassium Penicillin G. They are available in convenient purse- or pocket-sized packages of 10.

PENETTES is Bristol Laboratories' trademark for Penicillin Chewing Troches in a flavored chicle base.

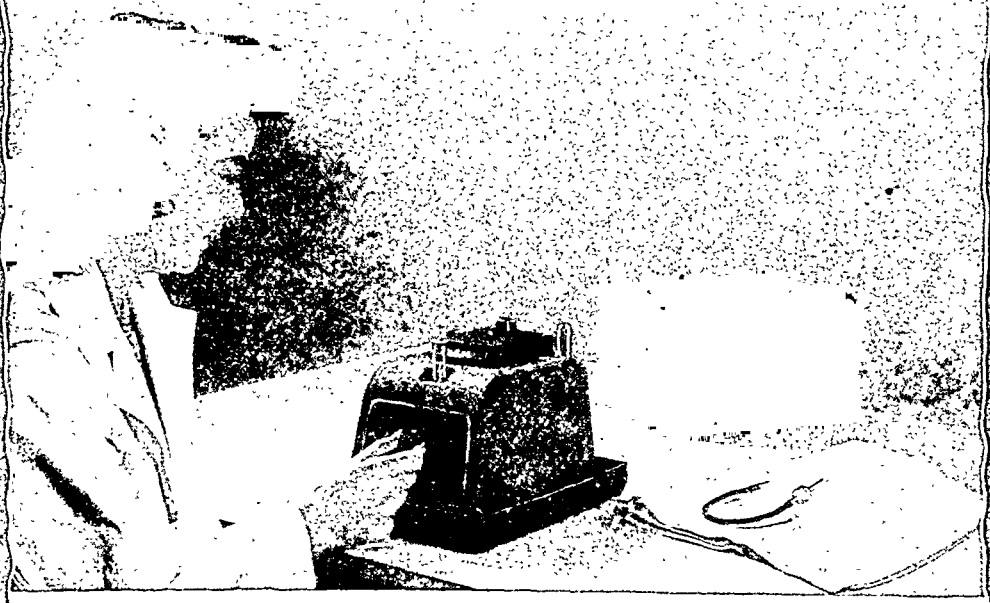
Bristol
LABORATORIES INC.
SYRACUSE, NEW YORK



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ELIMINATE THE HUMAN FACTOR
. . . in measuring hemoglobin
with the
FISHER ELECTRO-HEMOMETER



Rapid and accurate determination of hemoglobin in blood is possible with the Fisher Electro-Hemometer which operates on the acid-hematin principle. With this instrument, clinical examination becomes standardized because the human error of visual examination is eliminated. The direct reading scale shows the determination in both percentage of normal and grams per 100 ml. To the ease and accuracy of photometric measurement, the Electro-Hemometer adds speed and simplicity. No calculating is required and various operators achieve identical results. Supplied with this compact, portable unit are the photometric cell, standardizing cell, diluting pipette, the necessary batteries and printed instructions. Simplified operating directions are on the panel.

Electro-Hemometer, complete $90.00

Leather Carrying Case.....$9.00

Headquarters for Laboratory Supplies

FISHER SCIENTIFIC CO. — 717 Forbes St., Pittsburgh (19), Pa. — 2109 Locust St., St. Louis (3), Mo.

EIMER AND AMEND — Greenwich and Morton Streets, New York (14), New York

In Canada: Fisher Scientific Co., Ltd., 904 St. James Street, Montreal, Quebec

THROAT SPECIALISTS PROVE CAMEL MILDNESS IN 30-DAY SMOKING TEST

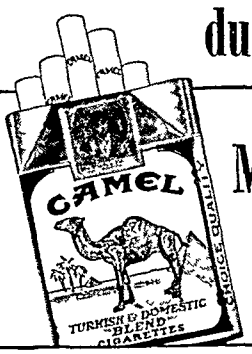


● In a recent coast-to-coast test, hundreds of men and women smoked Camels—and only Camels—for thirty consecutive days. They smoked on the average of one to two packages of Camels a day. Each week during the entire test period, the throats of these Camel smokers were examined by throat specialists. A total of 2,470 careful examinations were made. And after correlating these case histories, the throat specialists reported

"NOT ONE SINGLE CASE OF THROAT IRRITATION due to smoking CAMELS."

MONEY-BACK GUARANTEE!

Try Camels and test them as you smoke them. If, at any time, you are not convinced that Camels are the best cigarette you've ever smoked, return the package with the unused Camels and you will receive its full purchase price, plus postage. (Signed) R. J. Reynolds Tobacco Co., Winston-Salem, North Carolina

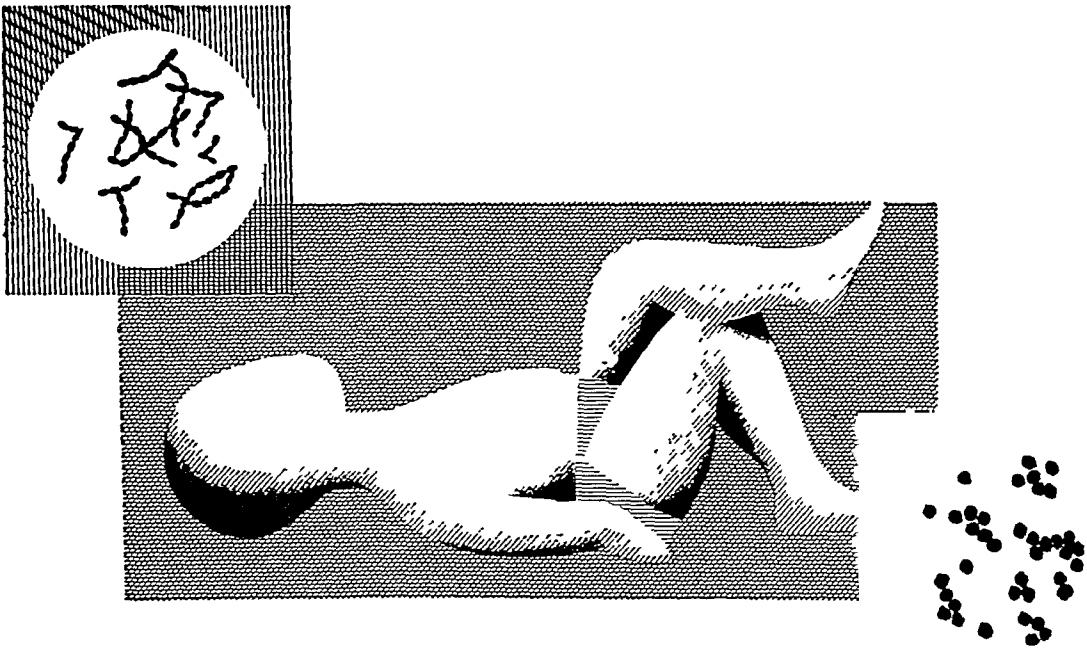


According to a Nationwide survey:

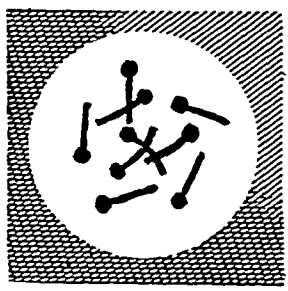
MORE DOCTORS SMOKE CAMELS

than any other cigarette

When three leading independent research organizations asked 113,597 doctors what cigarette they smoked, the brand named most was Camel.



Three immunities with three 0.5 cc. injections



Protection against three organisms—C Diphtheriae, Cl. Tetani, and H. Pertussis—is conveniently provided by *Diphtheria and Tetanus Toxoids Alum Precipitated and Pertussis Vaccine Combined Squibb* given in three doses of 0 5 cc. each at monthly intervals.

Among its many advantages are:

Greater Convenience to patient and physician alike
Less Discomfort to the patient
Fewer Injections and hence lower expense to the patient
Lower Expense of administration for institutions and physicians
Pharmaceutical Elegance—milky suspension, exceptionally fluid.

DIPHTHERIA AND TETANUS TOXOIDS
ALUM PRECIPITATED
AND PERTUSSIS VACCINE COMBINED

In 1 5 cc vials, providing 1 complete immunization
In 7.5 cc vials, providing 5 complete immunizations

SQUIBB



Conservative Management WITH BACITRACIN

CSC

REDUCES THE NEED FOR INCISION

In the management of carbuncle and a host of other local cutaneous infections the early use of bacitracin greatly reduces the need for incision and drainage in a vast majority of patients. Injected directly into the lesion, bacitracin (500 U./cc. in sterile isotonic sodium chloride solution) exerts a profound antibiotic influence upon the invading pyogens. Bacitracin is particularly effective in the presence of penicillin-resistant staphylococci and streptococci, and in mixed infections. Topical administration of bacitracin solution hastens resolution, minimizes pain, and in most cases averts the need for local surgery.

Bacitracin, topically administered, is a valuable means of treating a wide variety of local infectious processes. Physicians are invited to send for descriptive literature.

SUPPLY

Bacitracin-C.S.C. is supplied in 20 cc. size rubber-stoppered vials containing 2,000 and 10,000 units, and in 50 cc. rubber-stoppered vials containing 50,000 units.

C.S.C. Pharmaceuticals

A DIVISION OF COMMERCIAL SOLVENTS CORPORATION, 17 EAST 42ND STREET, NEW YORK 17, NEW YORK

Book Suggestions

for PUBLIC HEALTH BUDGETS

Coburn—Epidemiology of Hemolytic Streptococcus	$4.00
Ratner—Allergy, Anaphylaxsis, and Immunotherapy	$8.50
Gay—Diagnosis and Treatment of Asthma	$5.00
Rosebury—Experimental Air-borne Infection	$4.00
Albrecht—Modern Management in Clinical Medicine	$10.00
Wadsworth—Standard Methods of the N. Y. State Health Department Laboratories	$10.00
Hopkins—Water Purification Control	$4.00
Lehman & Flury—Hygiene & Toxicology of Industrial Solvents	$5.00
H. O. & F. P. Kendall—Muscles, Testing & Function	$7.50
Rehfuss, Albrecht & Price—A Course in Practical Therapeutics	$15.00
Keers & Rigdon—Pulmonary Tuberculosis	$5.00
Zacks—Photoradiography in Search of Tuberculosis	$5.00
Buxton & Mackay—Nursing in Tuberculosis	$2.00
Krantz & Carr—Pharmacologic Principles of Medical Practice	$10.00
Grulee & Eley—The Child in Health & Disease .	$12.00
White & Weinstein—Blood Derivatives & Substitutes .	$7.50
Brodsky—An Atlas of Oral & Facial Lesions: A set consisting of a textbook plus 100 beautiful color slides in a special plastic case per set	$80.00

Send for a free catalog describing many others

THE WILLIAMS & WILKINS COMPANY

BALTIMORE 2 **MARYLAND**



Spotlight on the Riboflavin in Ice Cream

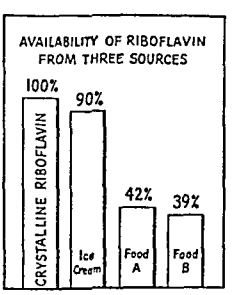
Here is evidence that the riboflavin in ice cream is almost completely available for use by the body.

It was discovered recently that by actual analysis the riboflavin content of ice cream is much higher than previously believed. This is important news but it is only the first chapter of the story.

Other recent research proves that riboflavin occurs in ice cream in a form that the body can use efficiently. A study conducted by Everson and co-workers* in which college women served as experimental subjects, shows that the riboflavin of ice cream is almost 100% available to the human body.

> When a supplement of riboflavin was furnished by ice cream, it was nearly as well absorbed as the vitamin in its pure crystalline form and better than that in two other test foods studied. These facts are illustrated in the chart below.

The presence of nutritive constituents in foods is not alone sufficient to insure proper nourishment. Nutrients also must be in a form which can be assimilated readily and put to use by the body. It is increasingly apparent that *availability* of nutrients is just as important as is actual nutrient *content* in selecting foods for specific dietary recommendations. It is reassuring to know that, as to riboflavin, ice cream ranks high on both counts. This is important for everyone concerned with planning nutritious diets, whether to please normal appetites, or the often difficult appetites of the ill and the aged.



*Everson, G., Wheeler, E., Walker, H., and Caulfield, W. J. *Availability of riboflavin of ice cream, peas and almonds judged by urinary excretion of the vitamin by women subjects.* J. Nutr. *35*:209 (Feb) 1948.

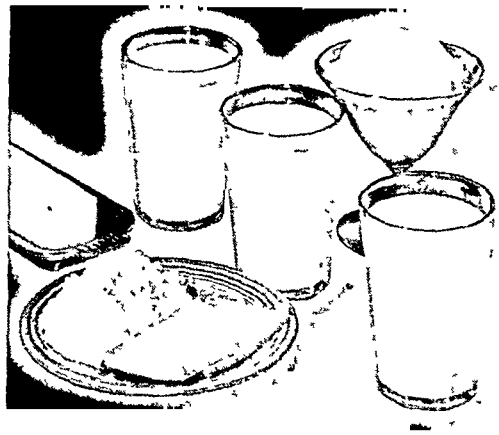
National DAIRY COUNCIL

111 North Canal Street • Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and to education in the use of dairy products.

The presence of this seal indicates that all nutrition statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.





Don't be your age

To all who want to look and feel younger than they are, nutrition research offers sound advice

EVERYONE knows that science has increased the number of years we can expect to live. We are learning, also, to make the extra years count. Good nutrition is one important factor in extending the period of adult vitality.

Recent research makes it apparent that, while aging persons may need less calories because of decreasing energy requirements, it is highly desirable for their health and happiness to keep the nutrients in their diets at a high level.

Learn from nutrition research—Ohlson and associates* have studied groups of older women. Important observations were made as to their dietary habits, their physical status, and their need for protein, calcium, and phosphorus. These older women were found to need protein for maintenance of body tissues just as much as younger women. If they omitted milk from their diets, their intakes of protein and of other nutrients suffered.

Approximately one gram of calcium daily was found to be necessary, on the average, to keep these older women in calcium equilibrium. However, since calcium is not abundantly distributed among foods, the women received this amount of calcium only if their diets contained liberal amounts of milk and milk products. The calcium content of the women's diets was directly related to the amount of milk they consumed.

Many adults, especially women, show a considerable degree of demineralization of the skeletal structure by the age of fifty. This condition may lead to broken bones and the familiar stoop shoulders of old age. The precise mechanism requires further study.

Make your extra years count—In the study, the groups of women considered to have good health tended to drink more milk, eat more vegetables, whole-grain cereals, and eggs than women in corresponding poor health groups. The study suggests that ill health may be associated with food intakes that are unsatisfactory in quality and quantity. But the authors point out that while ill health itself may result in reduction of food intake, the symptoms of ill health also may be exaggerated by inadequate food.

As the American life span increases, the need to guard the health of older citizens grows more and more vital. Good nutrition constitutes one important factor of protection. Liberal consumption of milk and its products is one basic step toward good nutrition.

*Ohlson, M. A., Roberts, P. H., Joseph, S A., and Nelson, P. M. *Dietary practices of 100 women from 40 to 75 years of age.* J. Am. Diet. Assn *24*:286 (April) 1948.

Roberts, P. H., Kerr, C. H., and Ohlson, M. A. *Nutritional status of older women.* J. Am. Diet. Assn. *24*:292 (April) 1948.

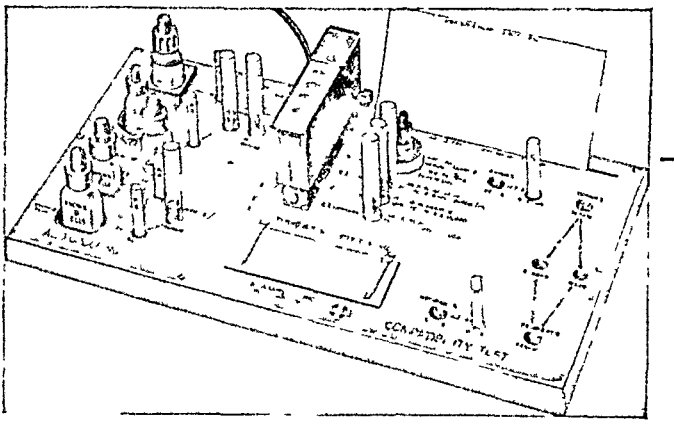
Ohlson, M. A., Brewer, W. D., Cederquist, D. C., Jackson, L., Brown, E. G., and Roberts, P. H. *Studies of the protein requirements of women.* J. Am. Diet. Assn *24*:744 (Sept.) 1948.

The presence of this seal indicates that all nutrition statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

National DAIRY COUNCIL

111 North Canal Street • Chicago 6, Illinois

Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and to education in the use of dairy products.



Prevent dangerous errors in blood typing

BROWN BLOOD BOARD

Cuts down errors in blood grouping, Rh typing, Rh sensitivity testing and cross matching for transfusion by combining the latest approved technics into a simplified, organized procedure. . . . In emergency, permits accurate determinations by doctors or technicians not normally responsible for such testing.

The Brown Board outfit [1] consists of an etched and stamped metal plate on a hardwood base, with an Rh typing box,[2] adapters designed to hold any commercial anti-serum bottle, reagent bottles, test tubes, dropping pipettes and concavity slides for Rh typing. Adapters and reagent bottles are designed to permit one-hand removal and replacement of the dropping pipettes.

To cut down errors, the reagent bottles, adapters and tubes are permanently marked in different colors which match the labelling and coloring of their respective positions in the Board; their sizes or shapes also differ, so that they can fit only in their own positions. A slot in the Board holds the Donor Card and Transfusion Request Form in front of the technician while tests are being made.

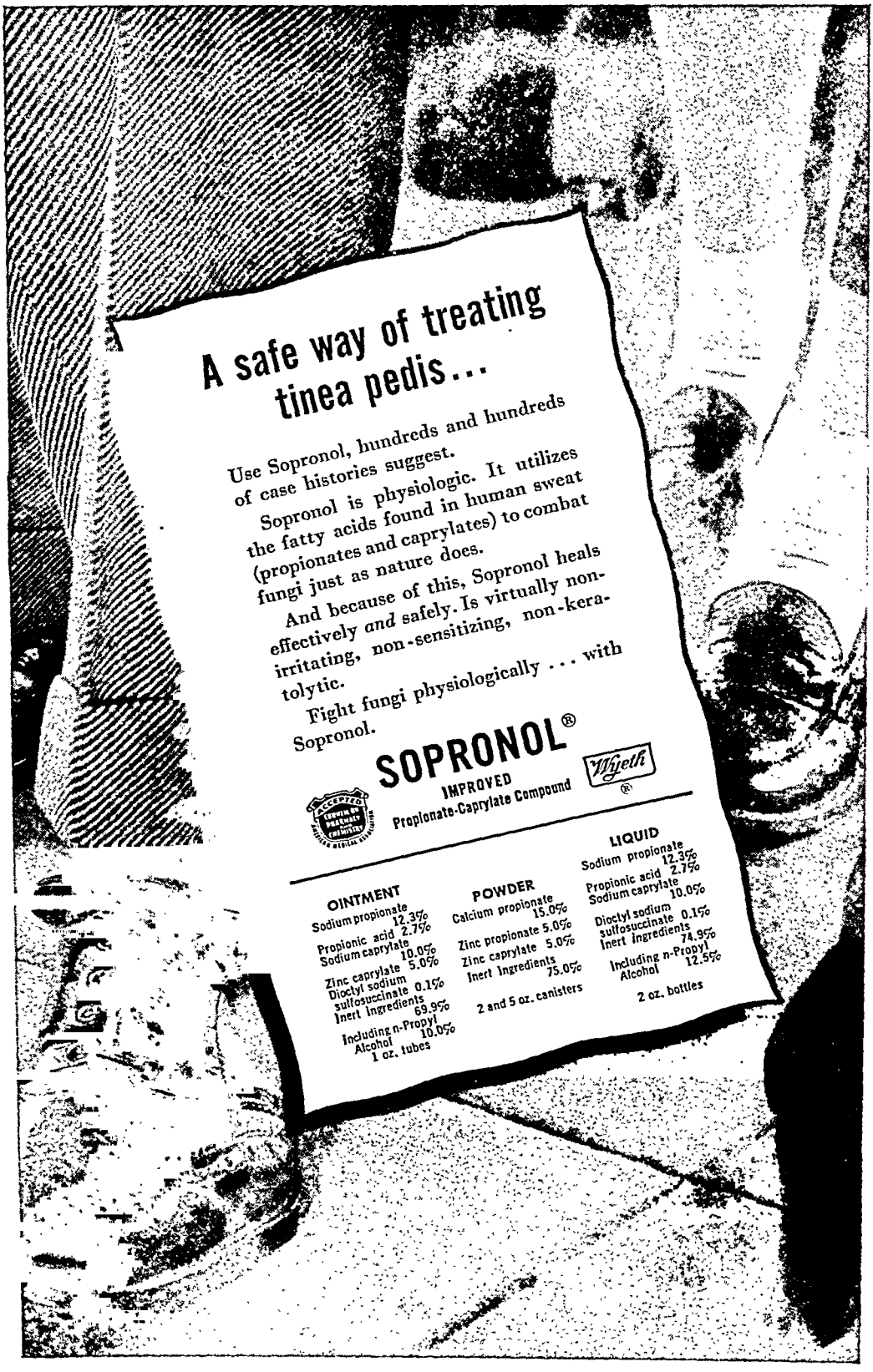
Brown Blood Board, complete with Rh typing box, anti-serum bottle adapters, reagent bottles, test tubes, dropping pipettes and four-concavity slides for Rh typing.....**A-2800** each **$90.00**

1. "A Note on Blood Grouping and Cross Matching with Special Reference to a Convenient Grouping Cross Matching Board." I. W. Brown, Jr., M.D. In press.

2. "The Demonstration of Anti-Rh Agglutinins —An Accurate and Rapid Slide Test." L. K. Diamond, M.D. and N. M. Abelson, M.D. Jl. Lab. & Clin. Med., Mar. 1945.

CLAY-ADAMS COMPANY, INC.
141 EAST 25th STREET · NEW YORK 10
Showrooms also at 308 West Washington Street, CHICAGO 8, ILL.

ADAMS

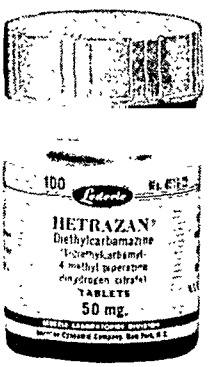

A safe way of treating tinea pedis...
Use Sopronol, hundreds and hundreds of case histories suggest.
Sopronol is physiologic. It utilizes the fatty acids found in human sweat (propionates and caprylates) to combat fungi just as nature does.
And because of this, Sopronol heals effectively and safely. Is virtually non-irritating, non-sensitizing, non-keratolytic.
Fight fungi physiologically . . . with Sopronol.
SOPRONOL®
IMPROVED
Propionate-Caprylate Compound
Wyeth
ACCEPTED
OINTMENT
Sodium propionate 12.3%
Propionic acid 2.7%
Sodium caprylate 10.0%
Zinc caprylate 5.0%
Dioctyl sodium sulfosuccinate 0.1%
Inert Ingredients 69.9%
Including n-Propyl Alcohol 10.0%
1 oz. tubes
POWDER
Calcium propionate 15.0%
Zinc propionate 5.0%
Zinc caprylate 5.0%
Inert Ingredients 75.0%
2 and 5 oz. canisters
LIQUID
Sodium propionate 12.3%
Propionic acid 2.7%
Sodium caprylate 10.0%
Dioctyl sodium sulfosuccinate 0.1%
Inert Ingredients 74.9%
Including n-Propyl Alcohol 12.5%
2 oz. bottles

Treat Filariasis Easily and Quickly with

HETRAZAN

DIETHYLCARBAMAZINE

Lederle



The treatment of so large a portion of the population that is affected by a disease as filariasis requires a drug that is easy to administer. HETRAZAN Diethylcarbamazine *Lederle* is such a drug. It is provided in tablet form that may be given orally after meals.

The low toxicity of HETRAZAN and its high specificity for *Wuchereria bancrofti* and *Onchocerca volvulus*, its freedom from any toxic heavy metals, and its stability under varied heat and moisture conditions, make HETRAZAN Diethylcarbamazine *Lederle* the drug of choice in the treatment of filarial disease.

*Reg. U. S. Pat. Off.

PACKAGES—BOTTLES OF 100 AND 1000 TABLETS.

LEDERLE LABORATORIES DIVISION

AMERICAN *Cyanamid* COMPANY

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Warmth Without Weight

Scientific progress has reached out to so many fields in the past few years. that people in all walks of life have benefited. The Uniform Clothing field has been prominently affected by scientific advancement.



SMITH-GRAY has kept abreast of every development, and is now proud to introduce to the field of Public Health Nurses uniform clothing, a coat which will provide WARMTH WITHOUT WEIGHT.

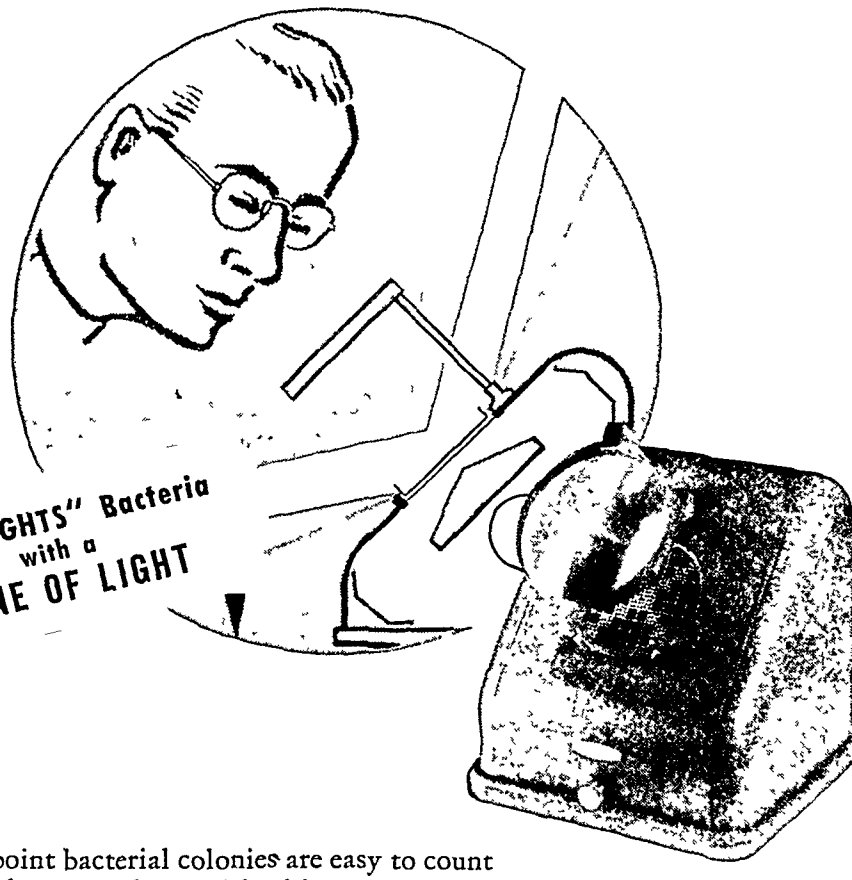
This is accomplished by a lining which was developed during the last war by the United States Army Arctic Clothing Program. This remarkable lining, although light as a feather, insulates the coat so completely that a lighter weight material may be used for the coat and still provide perfect WARMTH WITHOUT WEIGHT.

SMITH-GRAY has made exhaustive experiments during the past winter, and has put this remarkable lining to severe test. We have used it extensively in coats made of lighter than usual material, subject to hard usage, and worn by individuals whose occupations expose them continually to severe climatic conditions.

With pride, we now offer this scientific achievement to Public Health Nurses everywhere. To each we say: —The incorporation of this lining in your next winter's SMITH-GRAY coat will bring you WARMTH WITHOUT WEIGHT!

SMITH-GRAY
SINCE 1845
740 Broadway,
New York 3, N.Y.
Tailors

NEW SPENCER COLONY COUNTER



Even the pinpoint bacterial colonies are easy to count —quickly and accurately — with this new Spencer Dark Field Quebec Colony Counter. Employing the principle of the dark field microscope, it has a unique annular reflector which illuminates the specimen symmetrically with oblique rays of light and leaves the background subdued. As a result it provides:

1. **Remarkably uniform illumination**— the colonies are lighted from all sides.

2. **Greater brilliance**— reflector collects and concentrates the light rays.

3. **Freedom from glare**— only light reflected from the specimen reaches the eyes of the observer.

4. **Enclosed illuminating system** — protected from dust, yet permitting easy replacement of the household 40 watt lamp.

Equipped with a standard 1.5x lens, this compact, efficient instrument will be welcomed by health departments, hospitals, dairies, breweries, canneries— wherever colony counts are made. Write dept.T-19 for details.

American Optical
COMPANY
Scientific Instrument Division
Buffalo 15, New York

Manufacturers of the SPENCER Microscopes, Instruments



Neglect of Breakfast

MAY MEAN

Neglect of Health

AN ADEQUATE breakfast is the first step of the day towards adequate nutrition; good nutrition in turn is excellent assurance for maintenance of health. The skipped or skimpy breakfast not only deprives the body of needed morning nourishment, but threatens both the adequacy of the day's diet and the general well-being.

The foods customarily eaten at breakfast—fruit or fruit juice, cereal, milk, bread and butter—are also the foods comprising a basic breakfast pattern which has found wide endorsement by nutrition authorities. This breakfast pattern provides well-balanced nourishment: proteins of high biologic value, carbohydrate energy, vitamins, and minerals. The easy digestibility, excellent nourishment, and tastiness of the cereal serving—breakfast cereal,* milk, and sugar—make it a favored food in the morning meal in convalescence and in health.

The many kinds of breakfast cereals add welcome variety of form, texture, and appetite appeal to the cereal dish.

BASIC BREAKFAST	TOTALS supplied by Basic Breakfast		AMOUNTS supplied by cereal serving
Orange juice, 4 fl. oz.;	CALORIES	611	202
Ready-to-eat or Hot Cereal, 1 oz.;	PROTEIN	20.7 Gm.	7.1 Gm.
	CALCIUM	0.465 Gm.	0.156 Gm.
Whole Milk, 4 fl. oz.;	PHOSPHORUS	488 mg.	206 mg.
Sugar, 1 teaspoon;	IRON	3 mg.	1.6 mg.
Toast (enriched, white), 2 slices;	VITAMIN A	1074 I. U.	193 I. U.
	THIAMINE	0.52 mg.	0.17 mg.
Butter, 5 Gm. (about 1 teaspoon);	RIBOFLAVIN	0.87 mg.	0.24 mg.
	NIACIN	2.3 mg.	1.4 mg.
Whole Milk, 8 fl. oz.	ASCORBIC ACID	64.8 mg.	

**Composite average of all breakfast cereals on dry weight basis.*

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.

A RESEARCH AND EDUCATIONAL ENDEAVOR DEVOTED TO THE BETTERMENT OF NATIONAL NUTRITION

135 South La Salle Street • Chicago 3

GENUINE

Roccal

Reg U S Pat Off and Canada

BRAND

SANITIZING AGENT

TO DO A BETTER SANITIZING JOB

EVERY TIME



The ORIGINAL *Quaternary* Ammonium Germicide

243189R
This Control No. Guarantees
POTENCY
UNIFORMITY
QUALITY

Laboratory tested and Controlled

The sanitizing properties of quaternary ammonium compounds are so well known to public health officials that little could be said about them that you do not know. Almost everybody in public health work has added the "quats" to the armamentarium he uses in his war on disease.

The question then, is which "quat"? Are they all alike? Which one can I depend on to do the job expected of it *every* time?

In Roccal, the original quaternary ammonium germicide, you are offered a product that is always uniform in quality because it is made under the most rigid controls. Every batch must pass the comprehensive laboratory tests of one of the world's leading pharmaceutical manufacturers. You can depend on Roccal to do a better sanitizing job *every* time!

When you specify a "quat"
BE SURE IT'S GENUINE ROCCAL

WINTHROP STEARNS

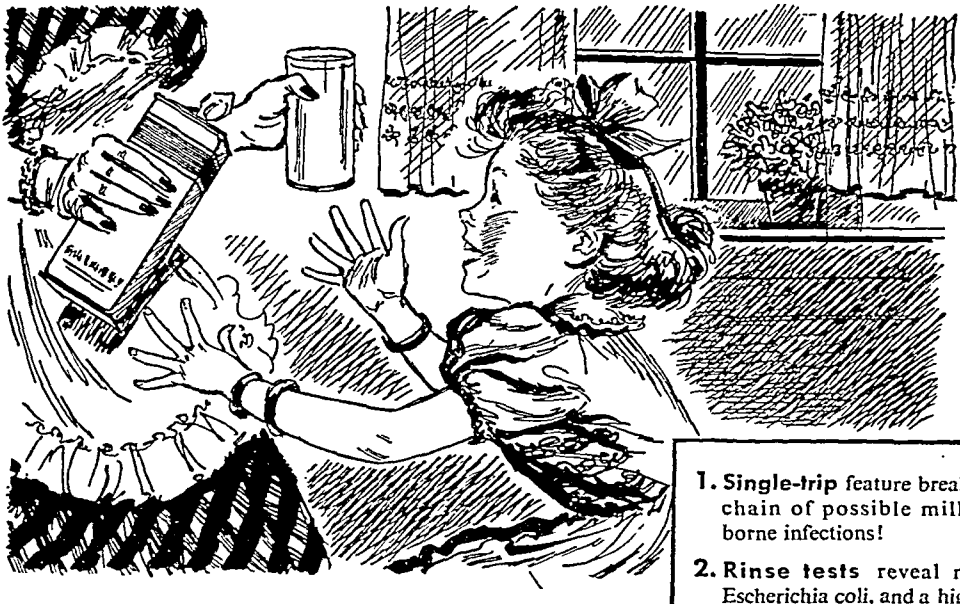
SPECIAL MARKETS—INDUSTRIAL DIVISION

Winthrop-Stearns INC.

170 VARICK STREET, NEW YORK 13, N. Y. A-69



Eskimos have a novel system of milk storage. They freeze their reindeer milk, hack off a hunk and melt it as needed. The system is neat . . . but hardly clean . . . and wide open to germs causing milk-borne diseases.



Americans prefer the single-trip system of Canco flat-top Paper Milk Containers . . . the safe, sanitary system Public Health officials have sanctioned so widely.

1. **Single-trip** feature breaks chain of possible milk-borne infections!
2. **Rinse tests** reveal no Escherichia coli, and a high percentage of complete sterility in containers delivered to the dairy.
3. **Opened, filled,** and closed in minimum time by machines!

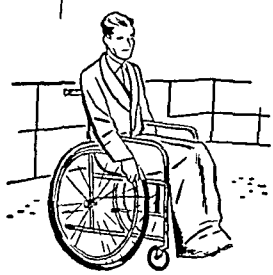
CANCO

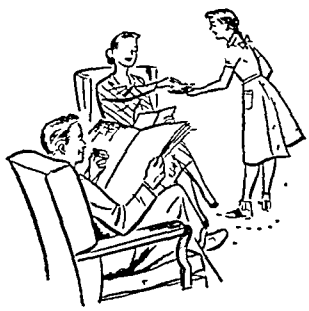
American Can Company New York, Chicago, San Francisco

DELICIOUS *Candy*

FOR MANY USES IN THERAPEUTICS







Candy, widely used empirically in medical practice by the ancient physicians, is employed therapeutically today in its many forms on a sound rational basis.

Hard dextrose candies, providing concentrated carbohydrate food energy, are particularly useful as a source of carbohydrate in the treatment of liver and other diseases. Medicated candy is widely employed in oral and respiratory infections, and is especially applicable for administering distasteful drugs to both children and adults. Candies, appealing in taste, cheer the convalescent patient, thus encourage a more favorable outlook by a direct psychosomatic approach.

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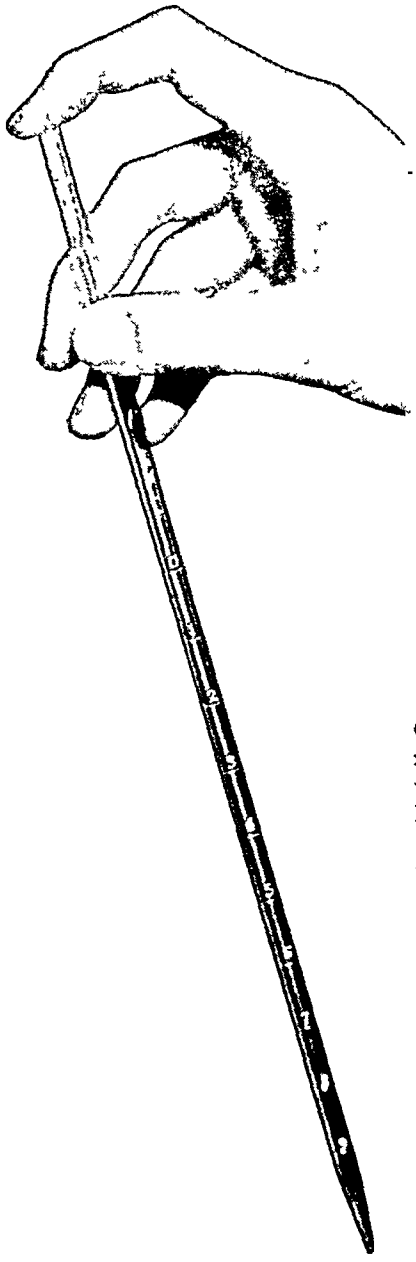
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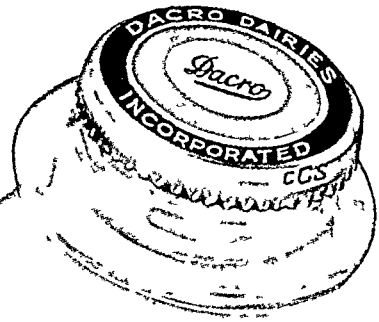
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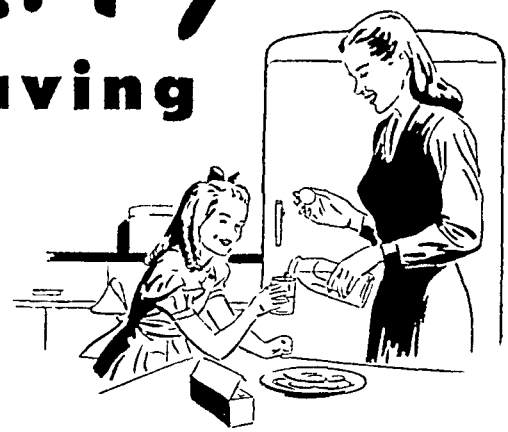
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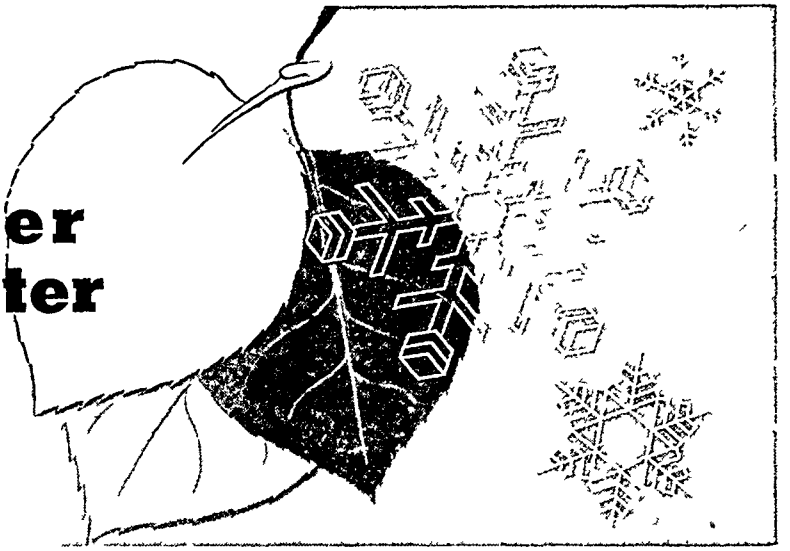
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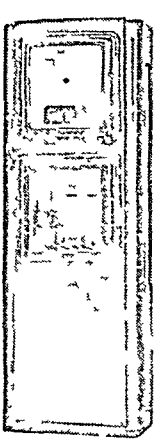
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Diagnostic Problems in Medical Mycology*

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THE laboratory diagnosis of mycoses is a problem of interest to clinicians as well as to laboratory workers. There are certain inadequacies and pitfalls inherent in current laboratory methods of detecting fungus infections which sometimes delay a differential diagnosis and which seriously limit our knowledge of the epidemiology of the mycoses.

The diagnosis of systemic fungus infections has aroused increasing interest during recent years, yet, although some improvements have been made, I know of no radically new dependable diagnostic methods in medical mycology. The diagnosis of a mycosis still rests upon one or, preferably, both of two procedures, the actual demonstration of the fungus in tissue or exudate and its isolation in pure culture with a specific identification of the fungus. The clinical variability of mycoses is notorious, so that even in superficial skin lesions of the hands and feet a laboratory diagnosis is desirable in the differentiation of dermatophytosis and dermatitis. In the case of pulmonary mycoses the roentgenologist finds it difficult to make more than a provisional diagnosis, for, although some fungi seem to show a predilection for certain lung areas, the diversity of lesions produced by even a single fungus makes the x-ray diagnosis at best probable rather than definitive. Serologic methods of diagnosis, in spite of improvements in techniques, remain only adjuncts to the direct demonstration of pathogenic fungi. The laboratory diagnostician, therefore, still needs to recognize and know individual fungi.

Methods of searching for, isolating, and recognizing fungi are described in so many texts that it would be repetitious to discuss here, one by one, the various mycoses and the laboratory procedures involved in the diagnosis of each. It may be worth while, however, to discuss some particular problems commonly met.

It would appear from an appraisal of the fungi which reach my laboratory for identification that lack of familiarity with the common saprophytic fungi is a frequent source of confusion. A bacteriologist who would discard at once a single colony of *Staphylococcus* ap-

* Presented before the Laboratory Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

pearing in a culture from a skin ulcer or from sputum may send for identification a *Penicillium* or an *Alternaria* which has appeared under such circumstances. The spores of fungi are freely air-borne, and viable spores of harmless fungi may fall into the culture or may be found in considerable numbers on skin surfaces or even within body cavities. The protective mechanisms of the body are not able to destroy promptly spores of some of these harmless saprophytic fungi. This can be demonstrated readily by injecting spores into a laboratory animal and recovering them in culture, sometimes weeks later, even though there has been no growth or multiplication in the experimental animal. Therefore, growth of saprophytic fungi in cultures made from exposed lesions is to be expected.

Viable spores of fungi are also inhaled in great numbers and may grow in cultures made from subsequently cultured sputum. The isolation of saprophytic fungi from sputum is therefore a common experience and these fungi may be of no more significance than the multitude of saprophytic bacteria also present. If one is searching for a fungus in pulmonary disease it is as important to differentiate probable pathogens and probable saprophytic contaminants among the fungi as among the bacteria. However, there are some saprophytic fungi which are occasionally pathogenic.

The importance of an accurate specific identification of fungi can be illustrated by a discussion of a fungus which is a member of a large genus most species of which are of no medical importance. This fungus, *Aspergillus fumigatus,* is a common saprophyte, yet it can, on occasion, cause pulmonary disease. Most of the green and gray-green fungi isolated from sputum will be other species of *Aspergillus* or *Penicillium* and only a careful examination of the fungus will enable one to recognize this particular species. This fungus is commonly present in superficial soil layers and in decaying vegetation. In a search for mycoses in rodents I have very often isolated it from the lungs of these animals although no gross or microscopic lesions could be found. Presumably the colonies appearing in these cultures come from recently inhaled spores. In cultures of human sputum the fungus sometimes appears, but I should attach no importance to a single or to occasional colonies appearing in a series of cultures unless there is supporting evidence of an etiologic relationship. Such evidence might consist of its appearance in large numbers in cultures made from several sputa collected with due precautions against contamination. If the patient has been working or living in a dusty environment, this may explain the appearance in culture of an occasional colony of this fungus. More convincing evidence of an etiologic relationship is furnished by the direct microscopic demonstration of typical hyphal fragments in the patient's sputum. The contorted, frequently septate, and often somewhat encrusted structure of these fragments, indicates that they actually grew in the lung and were not merely air-borne fragments recently inhaled.

The yeast-like fungus, *Candida albicans,* poses a different problem. It is not commonly air-borne but, on the contrary, may be considered as almost a normal inhabitant of the body cavities. *C. albicans* is commonly present as a secondary invader in sputum in almost every type of pulmonary disease, and it can be temporarily eliminated by iodides or gentian violet without affecting the course of the disease. It is capable of causing thrush and may modify pulmonary disease of other etiology, or in rare cases, be of primary importance. Usually, however, its isolation in sputum cultures is of no significance. Its abundance in a sputum specimen is significant, only if precautions are taken to avoid contamination

from the mouth and if the specimen is examined at once. *C. albicans, Fusarium, Cephalosporium,* and some other fungi multiply rapidly in sputum held at room temperature after collection. A 24 hour specimen or a specimen mailed to a laboratory is unsatisfactory, if not worthless, for mycological study. Even after isolation of *C. albicans* from a fresh sputum specimen and its specific determination by appropriate methods the question of its etiologic importance remains. Certainly, in most cases, another primary etiology can eventually be found.

I have mentioned two saprophytic fungi which under certain circumstances can become pathogenic, and some criteria more or less useful in judging their importance. There are other fungi which are without pathogenic properties but which present important diagnostic problems because of their resemblance to pathogens. Some of the Basidiomycetes or mushroom fungi which frequently appear as contaminants in sputum cultures are confusing because in colony appearance and in microscopic morphology they resemble the important pathogen, *Coccidioides immitis*. An examination of these fungi serves to illustrate the dependence mycologists place upon morphology in the identification of fungi. Many Basidiomycetes produce spores which are called oidia and are formed by the fragmentation of hyphae of haploid mycelia. There is nothing distinctive about them except that in some species they are borne on somewhat specialized terminally branching hyphae. They bear a superficial resemblance to the chlamydospores of *Coccidioides immitis* which, however, differ from them in certain important respects. The spores of *Coccidioides* are borne on special hyphae or conidiophores in which the fertile portion is nearly twice the diameter of the vegetative hypha from which it originates, the spore chains are constricted at the septa which separate spores, and there is a condensation of protoplasm within the hyphal segment which results in a chain of spores separated by empty spaces. This morphological differentiation is especially important because of the resemblance between the two fungi in culture.

One further problem associated with the recognition of pathogens involves poorly known fungi which cause the rare mycoses. A good example would be one of the rare types of mycetoma, in some of which the isolation of the fungus in culture is difficult or has been accomplished only a few times. In such cases there may be doubt about the identity of the fungus involved as well as about its etiological relationship. Here, one needs adequate amounts of material, from pus or biopsies, in order to determine as a preliminary step whether the fungus is actually growing in the lesions. Some ten years ago I received for identification an unfamiliar fungus which I identified as a *Fusidium*. It had been isolated from a lesion clinically typical of actinomycosis, but it was isolated only once and was not demonstrated in the tissues. I did not see another strain of this fungus until recently, when the same species was isolated from enlarged axillary nodes and submitted for identification. In the second case careful examination of stained sections failed to demonstrate the fungus but an acid-fast bacillus was isolated in culture and demonstrated in sections of nodes. It was concluded that the fungus was a culture contaminant in both these cases, but it is not a familiar contaminant and if it had been isolated repeatedly and found upon direct examination in pus or tissues further study might have justified another conclusion.

One of the practical problems confronting the laboratory diagnostician in the examination of pathologic material is the recognition of artefacts resembling fungus structures. In the case of dermatophytosis one of the most troublesome

is the so-called "mosaic fungus" which is actually an accumulation of cholesterol in the interstices of epidermal cells. There may be a superficial resemblance to fungus hyphae and, in fact fungi may be found associated with the mosaic. However the mosaic, as the name indicates, forms a network pattern extending around epidermal cells, the individual parts vary abruptly in diameter, and flat crystals with reëntrant angles can frequently be observed.

The so-called "myelin globules" present in large amounts in certain types of pus and sputum often assume forms suggesting budding fungi and hyphal fragments. It is usually possible to recognize these readily by observing the bizarre forms present, the laminated structure, and the increase in size or numbers of these bodies after the material is mixed with a sodium hydroxide solution. Other structures appearing in sodium hydroxide preparations of pus or sputum are clusters of fatty acid crystals and bacterial colonies which may be mistaken for the granules characteristic of actinomycosis.

There have been hopeful attempts to achieve shortcuts such as the use of culture media which will support growth of pathogens and inhibit saprophytes, but there is no satisfactory substitute for an acquaintance with the fungi and the circumstances under which they appear in cultures made from pathologic tissues or exudates. It is useful to know and recognize the characteristics of saprophytic fungi. It is essential to know and recognize the characteristics of the pathogens.

In the preparation of differential culture media for the isolation of pathogenic fungi there have been some useful advances. The first practical use of an antibiotic was in the preparation of selective culture media. Since pathogenic fungi, with the exception of *Actinomyces bovis*, are resistant to penicillin and streptomycin, the addition of 20 units per milliliter of each of these to a culture medium inhibits the bacteria which may be present in pus or sputum but permits the growth of fungi. The use of this medium, and of media containing other bactericidal ingredients, permits the ready isolation of fungi from ulcers and sputum in cases where more rapidly growing saprophytic bacteria would otherwise inhibit growth of pathogenic fungi. Robbins,[9] Georg,[4] Mackinnon,[6] Benham,[1] and others have obtained information about vitamin and growth factor requirements of some of the dermatophytes which have led to the improvement of culture media and new criteria for the limitation of species. Salvin[10] has determined the amino acid and vitamin requirements of *Histoplasma* and other pathogens and the influence of these nutritional factors upon the growth types of diphasic fungi.

The need for specialized knowledge and experience in the laboratory diagnosis of mycoses by recognition of the fungi has led to continued attempts to substitute for the actual demonstration and identification of fungi less direct diagnostic procedures. One of the most convenient of such procedures is the intradermal test which is based upon the well known principal that, as in many bacterial diseases, a cutaneous sensitization follows many fungus infections. If this sensitization were specific and if a specific antigen could be prepared from the fungus causing it, a cutaneous reaction to the intradermal injection of the antigen would have considerable diagnostic significance. The usefulness of such a specific test would be limited only by the fact that acquired cutaneous sensitization may persist for many years; consequently, a reaction may refer to an earlier infection rather than to the present condition which is under consideration.

The pioneer studies of cutaneous sensitization induced by the dermatophytes made by Bloch, Jadasshon, and their

students date from 1925 and many investigators have produced an enormous literature on the subject which I shall not attempt to review. Trichophytin, so far as I am aware, has little use as a diagnostic agent at the present time although there is still interest in it from the experimental viewpoint in some laboratories. Coccidioidin has had a very useful application to epidemiologic studies of coccidioidomycosis. Most of the coccidioidin used has been prepared by Dr. C. E. Smith[12] who has carefully tested the material, utilizing only those lots which give a minimum of nonspecific reactions. Recently acquired coccidioidin sensitivity is generally accepted as diagnostic of coccidioidomycosis even though the patient may have remained asymptomatic and the fungus cannot be demonstrated in exudates. Antigens for use in skin testing have been prepared from many other pathogenic fungi. Most of these have had a very limited use and adequate studies of specificity have not been carried out. One fungus antigen, histoplasmin, first prepared by Van Pernis, Benson, and Holinger in 1941,[13] has been widely used in epidemiologic studies. Histoplasmin is not specific, since laboratory animals can be sensitized to it by experimental infection with other fungi.[3] Howell[5] believes that by use of a critical dilution of histoplasmin a diagnostic interpretation can be made. The subject is of considerable medical interest because of Christie and Peterson's[2] and of Palmer's[8] demonstration of a correlation between histoplasmin sensitivity and the occurrence of non-tuberculosis pulmonary calcification and because of the high incidence (80–90 per cent) of histoplasmin sensitivity in some geographic areas. The interpretation of the histoplasmin skin reaction is equivocal, and in my opinion the diagnosis of histoplasmosis based on a cutaneous reaction to histoplasmin is not justified at the present time

Agglutinins, precipitins, and complement-fixing antibodies have been sought in human mycoses and in experimentally infected animals by many investigators during the past 40 years. The accumulated evidence seems to indicate that these serologic methods have a very limited usefulness in the practical diagnosis of mycoses. Martin[7] and his associates failed to find complement-fixing antibodies in a considerable number of patients with proved blastomycosis and particularly in those with localized cutaneous lesions. They did not attempt to increase the sensitivity of the antigen because of the inherent uncertainties of the method and the relative ease of making a definite diagnosis by mycologic examinations. They considered that the test had some prognostic value since they observed, as has Smith in coccidioidomycosis, that a rise in titer indicates generalization of the infection. In the case of the most pressing diagnostic problem in mycology, that of the possible occurrence of a prevalent mild form of histoplasmosis, serologic methods have not as yet been helpful. Salvin and Hottle's[11] report of the rise and subsequent fall of titer and eventual disappearance of complement-fixing antibodies in experimentally infected rabbits and our failure in field studies to find them in sera from individuals with strong skin reactions indicate that in histoplasmosis, as in other mycoses these methods may not be of value in the diagnosis of mild or healed cases.

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WHO on Maternal and Child Health

The report of the first session of WHO's expert Committee on Maternal and Child Health held in Geneva, January 24–29, is now available. Martha M. Eliot, M.D., its United States member, was unanimously elected Chairman and Dr. Marion Yang, the Chinese member, Vice-chairman. Other members represent Belgium, Czechoslovakia, India, Mexico, Turkey, and the United Kingdom.

Among the actions taken was the increase in the committee's membership to 12. Recommendations called for the establishment of an information bureau in the Maternal and Child Health Section to meet the widespread demand from many countries on various aspects of maternal and child health; that a health education service be developed in WHO; that coöperation between the Section and FAO and UNICF continue to provide supplies for child health programs, particularly clean and safe milk supply everywhere, and for nutrition work, particularly in rural areas; that mental health be included in the maternal and child health program; that the staff of the Section be increased to give countries assistance with demonstration teams, visiting consultants, research development of rural programs and those for handicapped children; that governments be urged to introduce compulsory immunization for children against such diseases as smallpox and diphtheria; that all possible action be taken to relieve the world-wide shortage of nurses; and that maternal and child health services be organized in underdeveloped areas.

The meeting discussed means by which pediatricians who would not otherwise be able to do so might be supplied with funds to attend the International Congress of Pediatrics, to be held in Zurich, July 24–29, 1950. In connection with the Congress a child health exhibition will be held from July 20 to August 5. The expert Committee recommended that WHO participate in planning an exhibition to demonstrate a maternal and child health program with particular reference to the function of the public health nurse and the midwife.

Histoplasmin Sensitivity Among Cattle*

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SINCE Ruhe and Cazier [1] have recently reviewed the occurrence of histoplasmosis in animals, no attempt will be made to review the literature. The disease has been reported in rats, mice, dogs, ferrets, and possibly a horse. The importance of these casual observations of infected animals in the epidemiological picture is difficult to evaluate because of the lack of a sufficient size sample of animals or of adequate diagnostic technic.

There have been, however, several serious attempts to find an animal reservoir of this disease. Emmons and his group [2, 3] have concentrated on attempts to isolate the organism from the tissues of wild or domestic animals. They reported the isolation of the organism from one house mouse (out of almost 1,000 studied), from 16 rats (*Rattus norvegicus*) (an average of 2.8 per cent), but negative results from numerous other animals such as woodchucks, rabbits, various species of mice, etc.

Our studies have been concentrated in the main on another approach to the problem, namely, the distribution of skin sensitivity to histoplasmin, an extract of the fungus *Histoplasma capsulatum*. The present paper reports studies in histoplasmin sensitivity among cattle and a comparison of this sensitivity among cattle and children in the same county in Kansas. We were first led to study cattle by the chance finding that of 13 head living on the farm of one of our suspected human histoplasmosis cases, two reacted to histoplasmin. Large scale studies were then done, at first with the active coöperation of Dr. Philip Cazier of the Bureau of Animal Industry, Department of Agriculture, whose assistance is gratefully acknowledged.

The tests were performed in most cases at the same time as tuberculin tests. No cross-reactions with tuberculin were found. One-tenth ml. of histoplasmin was injected intracutaneously in the caudal fold. Tests were read at 72 hours. A positive reaction was evidenced by an edematous swelling at the site of inoculation which was easily palpated and usually clearly visible.

The histoplasmin (Lots H-15 and H-40) was furnished by Dr. Arden Howell, Public Health Service. For the early tests, the same lot of histoplasmin (H-15), which had been extensively employed in tests on human beings, was used. The dilution of antigen to be used in cattle was arrived at empirically on the first farm tested. A dilution of 1 to 100 was first used and no reactions were noted in the 13 cows tested. When the herd was retested with a dilution of 1 to 10, 2 cows showed strong reactions, while none of the others showed any reaction. Lot H-15 was accordingly employed in a

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† From the Office of Field Studies, Division of Tuberculosis and Veterinary Public Health Division of Communicable Disease Center.

dilution of 1 to 10 in tests on 589 head of cattle in eastern Kansas. Because of a shortage of Lot H-15, it was necessary to employ Lot H-40 for the remainder of the study. Since H-40 was known to be slightly weaker than H-15, it was employed in a dilution of 1 to 5. Twelve hundred and eighty-five cattle throughout the state, including all those tested in Shawnee County, received this test dose.

A total of 1,874 cattle were tested in Kansas. Approximately 22 per cent of these were beef cattle and 78 per cent were dairy cattle. In the eastern third of the state 1,319 head were tested with 4.2 per cent showing positive reactions, in the central third, 136 were tested with 1.5 per cent positive, and in the western third, 419 were tested without finding a single positive. Study of these results indicates that histoplasmin sensitivity in cattle falls off as one moves westward in Kansas. A similar falling off in histoplasmin sensitivity in human beings in Kansas was shown earlier by Bunnell and Furcolow.[4]

A more detailed analysis of the comparison of histoplasmin sensitivity among human beings and cattle was attempted in Shawnee County, Kansas, a county in the eastern third of the state in which the state capital, Topeka, is located. Over 1,100 children had been tested in Topeka and their rate of reaction to histoplasmin was known.[4] For comparison with the cattle, only records of those children less than 13 years of age were used.

In Shawnee County 432 cattle were

FIGURE 1

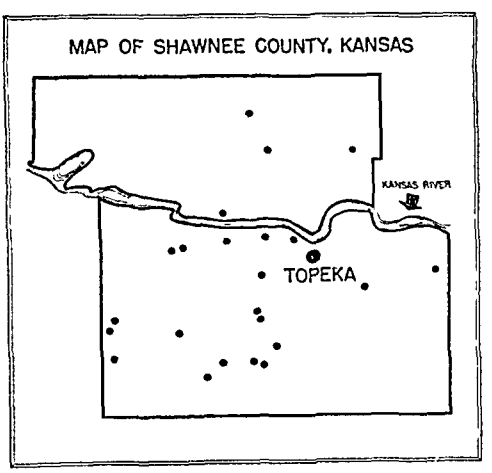


FIGURE 2

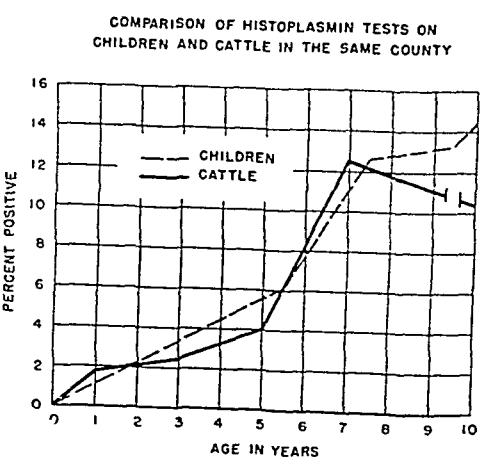


TABLE 1

Comparison of Histoplasmin Tests on Children and Cattle in the Same County

	Children (1:1,000 histoplasmin Lot H-15)				
	Age				
	5–6	*7–8*	*9–10*	*11–12*	*Total*
Number Tested	98	103	38	184	423
Number Positive	6	13	5	32	56
Per cent positive	6.1	12.6	13.2	17.4	13.2

	Cattle (1:5 histoplasmin Lot H-40)					
	Age					
	Under 2	*2–3*	*4–5*	*6–7*	*8 and Over 8*	*Total*
Number Tested	54	167	100	72	39	432
Number Positive	1	4	4	9	4	22
Per cent Positive	1.8	2.4	4.0	12.5	10.3	5.1

TABLE 2

Histoplasmin Sensitivity by Age of Cattle in Shawnee County, Kansas

	Age					
	Under 2	*2 and 3*	*4 and 5*	*6 and 7*	*8 and Over*	*Total*
			Original Tests			
Number Tested	16	109	81	53	23	282
Number Positive	0	4	4	8	4	20
Per cent Positive	0	3.7	4.9	15.1	17.4	7.1
			Institutional Herds			
Number Tested	38	58	19	19	16	150
Number Positive	1	0	0	1	0	2
Per cent Positive	2.6	0	0	5.3	0	1.3
			Total Cattle Tested			
Number Tested	54	167	100	72	39	432
Number Positive	1	4	4	9	4	22
Per cent Positive	1.8	2.4	4.0	12.5	10.3	5.1

tested. These cattle were distributed among 23 farms as illustrated in Figure 1. They ranged in age from less than 1 year to 16 years. Relatively few cattle over 9 years of age were tested. Table 1 shows the comparison of the histoplasmin skin test results on these 432 cattle compared to 423 children who were 12 years of age or less. In Figure 2 the comparison is shown graphically. From this figure it is evident that there are marked similarities in reaction rates between cattle and children of similar age.

A peculiarity was noted in the cattle testing, the significance of which is not clear. In the original studies, approximately 282 cattle on 21 farms scattered throughout the county were tested. Because of the interesting results obtained, an additional 150 head of cattle were tested from two institutional herds located on the outskirts of Topeka. The results of tests on these two institutional herds are tabulated separately in Table 2 as they are quite different from those obtained with the scattered farm testing, since only 2 of these 150 cattle, or 1.3 per cent, were positive to histoplasmin. Of the scattered 282 cattle tested on 21 premises, 7.1 per cent were positive to histoplasmin. The peculiar epidemiological characteristics of the two institutional farms compared with the remainder of the county are under investigation at present. So far no lead has been uncovered to explain the differences in histoplasmin reactors.

In summary, it is evident that histoplasmin reactors occur in cattle and that their geographic distribution in Kansas resembles that of histoplasmin reactors in human beings. Determination of the age-specific rates for cattle and men in a single county in Kansas makes it evident that the rates are quite similar in human beings and cattle of like age. From this it is deduced that both cattle and men are probably infected from the same outside source and that cattle do not constitute an animal reservoir of importance in the spread of the disease to human beings.

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Histoplasmin Sensitivity and Coccidioidal Infection*

1. Occurrence of Cross-Reactions

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AFTER we began preparing coccidioidin from asparagine synthetic medium [1] and distributing it on request, reports received indicated that the material was specific and that the coccidioidal endemic area of the United States was confined to the arid Southwest. The first seriously discordant note was the experience of Furcolow and Nelson in an orphanage in Ohio [2] wherein a considerable number of reactors were discovered. They found few reactors with dilute coccidioidin but a large number with concentrated material. Their findings made us suspect some unrecognized form of cross-reaction, for in our experience in coccidioidin surveys [1] most reactors are detected with the more dilute (1:1,000) material and only 10 per cent more are detected with a 1:100 dilution. However, until 1941 when we began our systematic coccidioidin surveys in the San Joaquin Valley Army Air Fields,[3, 4] we had observed no difficulties in interpreting the tests. Then we soon realized that either our coccidioidin did evoke cross-reactions or the endemic area extended into the central United States.

A number of equivocal and occasionally definitely positive coccidioidin

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

These investigations are an activity of the Commission on Acute Respiratory Diseases, Army Epidemiological Board, Office of the Surgeon General, Department of the Army. The study of coccidioidomycosis has been carried out at the Department of Public Health and Preventive Medicine, Stanford University School of Medicine, San Francisco, Calif.

reactions were discovered among groups of soldiers who had never before been west of the Rockies. In most instances the skin tests were performed too soon to have permitted locally acquired coccidioidal infection. With the enthusiastic coöperation characteristic of the commissioned and non-commissioned officers at those air fields, the new personnel would even be marched past us for their initial skin tests as they detrained, yet unexplainably equivocal and positive reactions would be elicited. The discovery by Emmons of *Haplosporangium parvum* in Arizona and the cross-reaction of haplosporangin and coccidioidin [5] added to our suspicion that an infection by another fungus might be responsible for these unexplainable reactions to coccidioidin. Indeed, in 1943 we prepared haplosporangin and discovered that these soldiers with equivocal coccidioidin tests frequently reacted vigorously to haplosporangin. However, many others did not react and it was evident that other agents must have been responsible for the nonspecific coccidioidin reactions.

In casting about for another possibility we were reminded that in 1940 when we were first experimenting with serological tests for coccidioidal infection, we prepared an antigen from *Histoplasma capsulatum* which fixed complement in a patient with coccidioidal granuloma to the same high titer as did antigen made from *Coccidioides*. This same histoplasmin was used for skin testing by Aronson in his very significant Arizona survey of non-tuberculous pulmonary calcifications and was reported by him as evoking reactions.[6] The home states of the equivocal reactors to coccidioidin coincided with those central states having high frequency of pulmonary calcifications in non-reactors to tuberculin. The fact that we [7] had noted calcifications in coccidioidal lesions, evidence greatly extended by Aronson's association of Arizonon pulmonary calcifications with coccidioidin sensitivity, caused us to suspect the rôle of some other fungus in the central states. Meleney's review [8] brought to notice the fact that histoplasmosis was most frequently reported from the same area.

The parallel between histoplasmosis and coccidioidomycosis was already strong. Rixford and Gilchrist [9] believed *Coccidioides immitis* was an animal parasite, as Darling [10] deemed *Histoplasma capsulatum*. Then as Ophüls and Moffitt [11] demonstrated that the former is a fungus, da Rocha-Lima [12] suspected and De Monbreun [13] proved that *Histoplasma* is also a fungus. All that would be needed to complete the analogy would be to demonstrate a benign form of histoplasmosis, as Gifford [14] and Dickson [15] showed with coccidioidal erythema nodosum. Accordingly in 1943, we [16] called attention to the problem of interpreting coccidioidin reactions in individuals from the Ohio River basin and contiguous areas, and the possible association of these bizarre reactions with histoplasmosis and pulmonary calcifications. These suggestions were only conjectures and certainly do not detract from the brilliant discoveries of those who have been associating pulmonary calcifications with sensitivity to histoplasmin. Our subsequent investigations with histoplasmin have not dealt with pulmonary calcifications but with the relationship to coccidioidin sensitivity.

Christie's investigations at Vanderbilt University, Nashville, Tenn., of pulmonary calcifications in those not reacting to tuberculin, convinced him that neither coccidioidal nor haplosporangial infections were responsible. He turned to *Histoplasma* and in 1944 sent us histoplasmin prepared on beef-broth medium by himself and Peterson. We shall refer to it as Vanderbilt histoplasmin, which is the same material used by Christie and Peterson in their studies of pulmonary calcifications.[17–20] Using

Vanderbilt histoplasmin in 1:100 dilution, we tested a number of our "equivocal" coccidioidin reactors and invariably they were strongly positive. We kept the histoplasmin on hand for tests when an interpretation of coccidioidin reactions was difficult, but not until the next year did we use it systematically.

As the Christie-Peterson discoveries progressed, we realized that we should include a histoplasmin test with our routine coccidioidin test, and in the spring of 1945 we began this simultaneous testing. With the publication of Palmer's [21, 22] momentous papers associating pulmonary calcifications with sensitivity to histoplasmin in nurses, we sought a supply of the same histoplasmin, which he secured from Emmons of the National Institute of Health. It should be emphasized that neither Emmons nor his associate Salvin at the N.I.H. distribute histoplasmin, nor do Christie and Peterson any longer. Emmons very kindly made an exception for us and sent us some of his Lot 3 histoplasmin, which was grown on asparagine synthetic media comparable to that used for tuberculin and coccidioidin.[23] This histoplasmin will be referred to hereafter as N.I.H. histoplasmin. Although Emmons suggested the same 1:1,000 dilution which Palmer had used, we first tried the N.I.H. histoplasmin in the 1:100 dilution we were using for the Vanderbilt histoplasmin and our coccidioidin. However, it frequently evoked stronger reactions in those known to be undergoing coccidioidal infections than we elicited from our coccidioidin. When we used the N.I.H. material in 1:1,000 dilution, it compared very closely with Vanderbilt 1:100 histoplasmin as we shall show later in more detail.

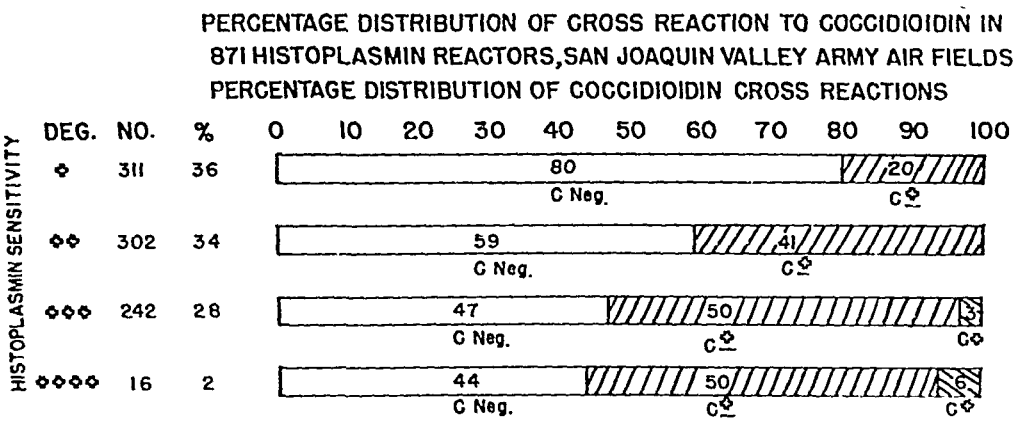
The coccidioidin was a 1:100 dilution of Lot 9, the same lot used throughout our Army studies. The coccidioidin and histoplasmin were injected at the same visit in the usual 0.1 ml. dosage intradermally in the volar surface of the left forearm, the histoplasmin proximally and the coccidioidin distally. The description of our testing and retesting procedures is presented in detail elsewhere.[3] Except at retests when all non-reactors to coccidioidin were being rechecked, one person did all of the testing and reading. At the time of retests, another of the investigators would also test or interpret, but the permanent tester was working alongside. Thus uniformity in techniques and interpretations was assured. Readings were made at 24 or 48 hours and were the generally accepted ones. Redness without induration of 5 mm. or more, or induration less than 5 mm. in diameter were considered equivocal and recorded as plus-minus (±). Induration of 5 to 9 mm. was recorded as one-plus (+). Induration of 10 to 14 mm. was recorded as two-plus (++) and of 15 mm. and more as three-plus (+++). When necrosis occurred, the reaction was recorded as four-plus (++++).

CROSS-REACTIONS OF COCCIDIOIDIN IN DOMINANT REACTORS TO HISTOPLASMIN

Out of 3,376 simultaneous histoplasmin tests in coccidioidin non-reactors or equivocal reactors, 864 (25.6 per cent) of the histoplasmin tests were positive. There were 7 others with one-plus coccidioidin reactions whose large histoplasmin tests placed them in the group dominantly sensitive to histoplasmin. It was in this group of 871 histoplasmin reactors that the vexatious equivocal and unexplainable positive coccidioidin tests were seen.

Figure 1 indicates the association between the degree of dominant histoplasmin sensitivity and these cross-reactions of coccidioidin. As we shall see later, there was no significant difference between histoplasmin tests using N.I.H. 1:1,000 histoplasmin or Vanderbilt 1:100 histoplasmin, so Figure

FIGURE 1

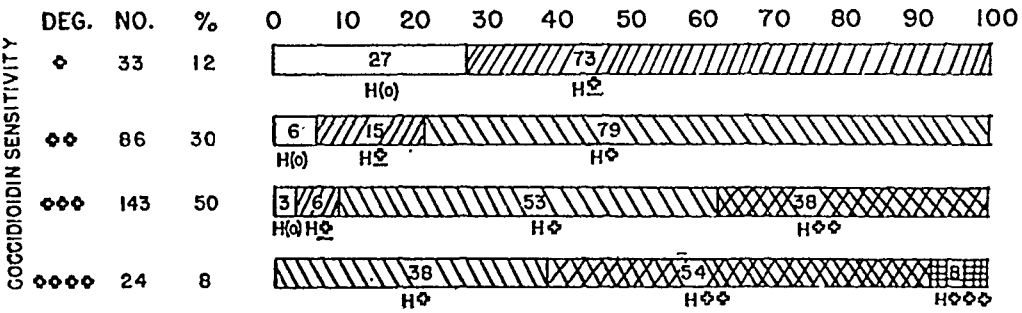


1 combines the two. We note that with one-plus histoplasmin reactions, 20 per cent of the coccidioidin reactions were equivocal. With two-plus histoplasmin reactions the proportion of equivocal coccidioidin reactions doubled. The three- and four-plus histoplasmin reaction were accompanied by a still higher proportion of coccidioidin cross-reactions, with 7 actually positive (one-plus) coccidioidin reactions. These positive coccidioidin reactions were in recent arrivals to the coccidioidal endemic area who had normal sedimentation rates and negative coccidioidal serological tests, evidence against any current coccidioidal infection. The greater the sensitivity to histoplasmin, the larger was the proportion of non-specific cross-reactions to coccidioidin. However, even with three- and four-plus histoplasmin reactions, approximately half the simultaneous coccidioidin tests were entirely negative. Thus, coccidioidin did not cross-react to a degree which interfered with interpretation. This is in accordance with the experience of Christie and Peterson,[17] Palmer,[21] Emmons, Olson, and Eldridge,[23] and Howell's animal studies.[24] However, when the coccidioidin concentration was increased to 1:10, nearly all " equivocal " reactions became definitely positive. For example, a trial of 1:10 coccidioidin in 12 histoplasmin reactors equivocal (±) to 1:100 coccidioidin resulted in 10 unquestionably positive reactions. When Furcolow and Nelson [2] in their Ohio orphanage increased the coccidioidin concentration, the proportion of reactions rose from 1 per cent with 1:1,000 coccidioidin to 50 per cent with 1:10. As we have recently pointed out,[25] in some patients with coccidioidal pulmonary cavitation it is necessary to go up to 1:10 coccidioidin to evoke a reaction. Patients with disseminated coccidioidal infections (coccidioidal granuloma) frequently have very poor sensitivity to coccidioidin, which is of some prognostic value.[1]

Such testing with coccidioidin may bring one to concentrations in which cross-reactions to dominant histoplasmin sensitivity pose a vexatious problem. However, we who are concerned with coccidioidal infections are relatively fortunate in that coccidioidin appears to be much more " specific " than histoplasmin. As Groover, *et al.*[26] observed in their patients with pulmonary disease, " Patients with a strong reaction to histoplasmin in a 1 to 1,000 dilution usually showed a mild reaction to coccidioidin in 1 to 10 dilution; those with a strong reaction to coccidioidin in the 1 to 1,000 usually had a mild reaction to the 1 to 1,000 dilution of histoplasmin." Thus, only if the coccidioidin was used in a concentration 10 times that advised for

FIGURE 2

PERCENTAGE DISTRIBUTION OF CROSS REACTION TO HISTOPLASMIN IN 286 COCCIDIOIDIN REACTORS (INFECTED BY COCCIDIOIDES)
SAN JOAQUIN VALLEY ARMY AIR FIELDS
PERCENTAGE DISTRIBUTION OF HISTOPLASMIN CROSS REACTION



routine tests, did cross-reactions in dominant histoplasmin reactors result. On the other hand, histoplasmin in its accepted concentration produced cross-reactions in those dominantly sensitive to coccidioidin. It is this cross-reaction which we shall consider next.

CROSS-REACTIONS OF HISTOPLASMIN IN DOMINANT REACTORS TO COCCIDIOIDIN

The investigation of cross-reactions of histoplasmin in dominant reactors to coccidioidin dealt with smaller numbers because once detected, coccidioidin reactors were not retested routinely. In Figure 2 are presented the histoplasmin reactions of 286 dominant coccidioidin reactors who received simultaneous histoplasmin and coccidioidin tests in the Army Air Force studies. One hundred and forty-six were tested in routine surveys and 140 were undergoing actual coccidioidal infections at the time of the tests. There was no significant difference in the relative reactions within the two groups, so that they are combined for presentation. One notes that, as coccidioidin sensitivity increased, the cross-reactions with histoplasmin became greater in degree as well as in proportion. While 27 per cent of the 33 one-plus coccidioidin reactors did not react at all to histoplasmin, each of the 24 four-plus cocidioidin reactors also reacted to histoplasmin, over half with a two-plus response. Over nine-tenths of the histoplasmin tests in coccidioidin reactors were positive, with nearly two-fifths showing at least two-plus reactions.

Of course, one asks if these reactions to histoplasmin might not have been the results of independently acquired sensitivity to histoplasmin. In most instances this possibility could not be excluded. However, we had a group of 31 who failed to react both to histoplasmin and to coccidioidin and subsequently acquired coccidioidal infections. Twenty-four were Army personnel and 7 were Stanford Medical School personnel who underwent laboratory infections. Eighteen of the former and 5 of the latter had definite symptoms, while 6 of the Army and 2 of the laboratory infections were inapparent. In 19 of the Army and all 5 of the laboratory infections which were clinically manifest, we obtained serological evidence of infection, as well as "conversion" of the coccidioidin test. As we see in Table 1, the smallest coccidioidin reactions were over 10 mm. in diameter and in the 9 recorded as two-plus, each had developed one-plus sensitivity when tested with histoplasmin. Of the 15 three-plus coccidioidin reactors, 9 (60 per cent) gave

TABLE 1

Dominant Coccidioidin Reactions and Histoplasmin Cross-Reactions in 31 Persons Originally Negative to Coccidioidin and Histoplasmin Who Subsequently Acquired Coccidioidal Infections

Degree of Sensitivity to Histoplasmin	Degree of Sensitivity to Coccidioidin			
	C++	C+++	C++++	Total
H+	9	9	2	20
H++	0	6	5	11
Total	9	15	7	31

one-plus reactions to histoplasmin and 6 were two-plus. There were 7 four-plus reactors to coccidioidin, 2 giving one-plus reactions to histoplasmin and 5 having two-plus reactions. Thus we observe this same pattern, the patients with greatest sensitivity to coccidioidin having developed greatest sensitivity to histoplasmin. The preceding negative histoplasmin test eliminated the possibility of a dual infection having been responsible for the cross-reaction.

These cross-reactions of histoplasmin in coccidioidal infection substantiate the belief that histoplasmin sensitivity is acquired by actual infection. Also, they could support the possibility that fungi other than *Histoplasma* might be responsible for the histoplasmin sensitivity. However, such fungi still would have to fulfil the requirement of marked restriction in geographic distribution.

BLASTOMYCIN REACTIONS IN COCCIDIOIDAL INFECTIONS

Emmons's[23] clinical studies at St. Elizabeths Hospital indicated cross-reactions between histoplasmin and blastomycin. Moreover, experimental infections of laboratory animals with *Histoplasma capsulatum* and *Blastomyces dermatitidis*[23, 24] have demonstrated a large proportion of cross-reactions. Howell's[24] studies indicated that by serial dilutions, the homologous skin testing material became differential. Bunnell and Furcolow,[27] by using Howell's method of serial dilutions, concluded that, in their patient infected by *Histoplasma capsulatum* who also reacted to blastomycin, the histoplasmin sensitivity was dominant.

We made no attempt to compare sensitivity of blastomycin and histoplasmin in dominant histoplasmin reactors. However, we did make a small study of blastomycin reactions in patients who were undergoing coccidioidal infections.

Donald Martin of Duke University kindly supplied us with skin testing "vaccine" of yeast phase *Blastomyces*. In 18 patients undergoing clinical coccidioidal infections, we performed simultaneous tests with 1:100 coccidioidin, 1:1,000 histoplasmin and this blastomycin. As Table 2 shows, the nonspecific

TABLE 2

Histoplasmin and Blastomycin Cross-Reactions in 18 Patients Undergoing Clinical Coccidioidal Infections Arranged According to Coccidioidin Sensitivity

Degree of Histoplasmin and Blastomycin Sensitivity		Degree of Coccidioidin Sensitivity			
		C+	C++	C+++	Total
H±	B±	3	1	0	4
H±	B+	0	1	1	2
H+	B±	0	1	0	1
H+	B+	0	4	5	9
H+	B++	0	0	1	1
H++	B++	0	0	1	1
Total		3	7	8	18

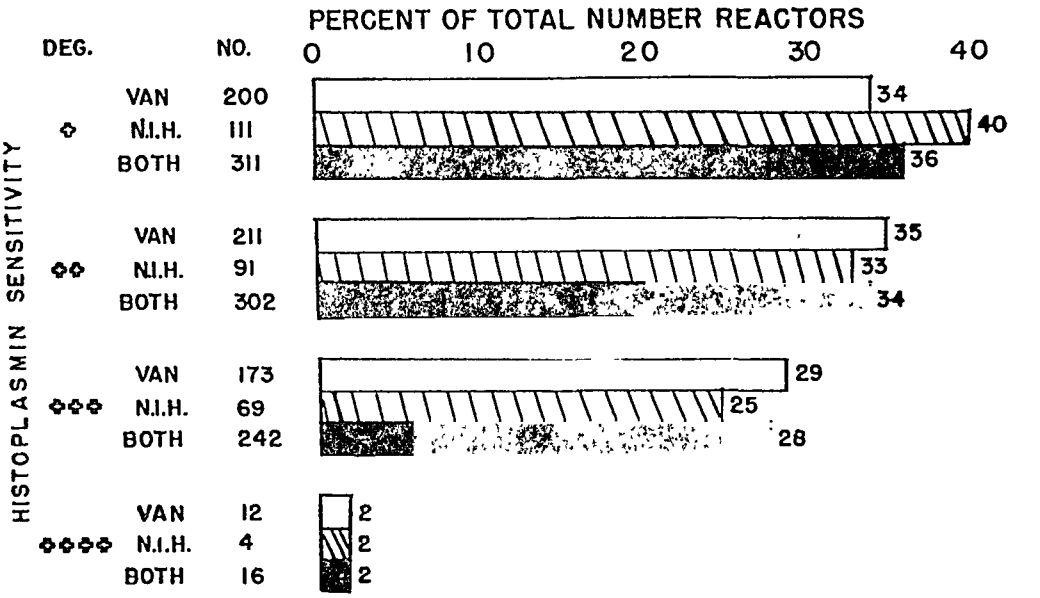
cross-reactions by the two latter antigens were almost identical. Thus, in this small group there was indication that the cross-reaction of histoplasmin elicited by coccidioidal infection is shared by yeast phase blastomycin.

SIZE OF HISTOPLASMIN REACTIONS—COMPARISON OF VANDERBILT AND N.I.H. HISTOPLASMIN

Figure 3 presents the distribution of size of reactions in dominant reactors to histoplasmin. We note that slightly more than one-third were one-plus, one-third were two-plus, between one-quarter and one-third were three-plus, and only 1 in 50 was four-plus. The concordance between Vanderbilt 1:100 histoplasmin

FIGURE 3

DISTRIBUTION OF SIZE OF REACTIONS ACCORDING TO SOURCE OF THE HISTOPLASMIN IN 871 ARMY AIR FORCE PERSONNEL DOMINANTLY SENSITIVE TO HISTOPLASMIN.



VAN.= 1-100 HISTOPLASMIN FROM CHRISTIE & PETERSON VANDERBILT UNIV. SCHOOL OF MEDICINE (396)

N.I.H.= 1-1000 HISTOPLASMIN FROM EMMONS, NATIONAL INSTITUTE OF HEALTH, U.S.P.H.S. (275)

and the N.I.H. 1:1,000 histoplasmin was very close.

Further comparisons of the N.I.H. and Vanderbilt histoplasmins gave additional evidence of their comparability in the dilutions used. For instance, the overall percentage of histoplasmin reactors in 1,950 persons negative or equivocal to coccidioidin tested with the Vanderbilt material was 26.1. Of the 1,426 tested with N.I.H. histoplasmin, 24.8 per cent reacted. At Minter Field 230 coccidioidin-negative or equivocally reacting personnel tested between July and November, 1945, with Vanderbilt histoplasmin were retested with N.I.H. material in January, 1946. One hundred and sixty-two were negative both times and 3 were equivocal both times. Of the 65 positives, 3 giving one-plus reactions to N.I.H. histoplasmin had been negative (1) or equivocal (2) to Vanderbilt material, but these were balanced by 2 who had one-plus reactions to Vanderbilt histoplasmin and who were negative (1) or equivocal (1) to N.I.H. histoplasmin. Thirty-two histoplasmin-positive reactions were recorded as the same in both tests. In 27 they differed by a single "plus" (15 being stronger with the N.I.H. material and 12 with the Vanderbilt). In only 1 instance did they differ by two "plus" (one-plus Vanderbilt and three-plus N.I.H.). Allowing for unavoidable variations in techniques of injections, these results appear quite uniform. Moreover, in the 2 to 6 months elapsing between tests, there was no evidence of loss of sensitivity.

The question also arises as to comparative specificity of the histoplasmins. There was no evidence that the Vander-

bilt material on beef broth gave gross nonspecific reactions as compared with the N.I.H. material in synthetic medium. The question really centers on the matter of cross-reactions in the dominant coccidioidin reactors. In 52 patients undergoing active coccidioidal infections, simultaneous tests were performed with 1:100 coccidioidin, 1:100 Vanderbilt and 1:1,000 N.I.H. histoplasmin. The two histoplasmins gave the same reactions in 34 cases. In 6 instances, one was equivocal and the other one-plus (Vanderbilt histoplasmin giving the larger reaction once and N.I.H. 5 times). In 12 patients the difference was by one "plus," with N.I.H. giving stronger reactions 8 times and Vanderbilt 4 times. In no test was there a difference of more than a single "plus." Thus, the cross-reactions did not differ significantly between the two materials.

As these comparisons were made prior to the production of histoplasmin either by Howell for the Division of Tuberculosis Control of the U. S. Public Health Service or by the Eli Lilly Company, we cannot compare the two materials now being distributed most widely. However, it is apparent that one should know his material and use it in accordance with its accompanying directions.

DURATION OF HISTOPLASMIN SENSITIVITY

Allusion has already been made to the the retest of 65 reactors to histoplasmin after an interval of 2 to 6 months and the fact that sensitivity had persisted. Olsen, Bell, and Emmons [28] mention a 7 per cent reversion from positive to negative out of 57 reactors retested after an interval of 3 to 8 months. The time intervals and numbers in both groups are very small. We were able to observe maintenance of histoplasmin sensitivity long after half a dozen reactors had taken up residence in California, an area relatively free of the agent or agents producing dominant histoplasmin sensitivity. One Army reactor after 9 years in Ohio had lived 10 years in California. Another, after 14 years in Oklahoma, had been 10 years in California. A third, after 17 years in Indiana, had resided 12 years in California. A fourth, after 18 years in Ohio, had lived 27 years in California. In tests of persons at Stanford Medical School, we discovered 2 other reactors who had been in California continuously for 21 and 24 years after coming from the Middle West (Kansas and Missouri and Illinois). These additional observations certainly indicate that histoplasmin sensitivity may persist for long periods, its durability apparently resembling that shown for tuberculin and coccidioidin.[1]

GEOGRAPHIC DISTRIBUTION OF DOMINANT HISTOPLASMIN SENSITIVITY

Early in the war a large proportion of the personnel of the San Joaquin Valley Army Air Fields was recruited locally. However, by 1945 when the histoplasmin was used routinely with coccidioidin, transfers had shuffled the personnel so effectively that we had a fair representation from most of the United States. This fact permitted us to study the geographical distribution of dominant histoplasmin sensitivity. All of these 3,376 histoplasmin tests were in adults. Two hundred and three were in women, 306 were in Negro males, and 2,767 in white males. The place where sensitization to histoplasmin was presumed to have been acquired was ascertained by asking for the "home state" and "home county." Our rosters also carried beside each name the state of birth. When the soldier's home state and state of birth did not coincide, he was asked further questions as to his residence. If he had lived in a number of states, no attempt was made to tabulate a state for him. Also, if his histoplasmin was positive and he had spent over 3 months in a central state or the Panama Canal Zone, no allocation was made. In our own experience very

TABLE 3

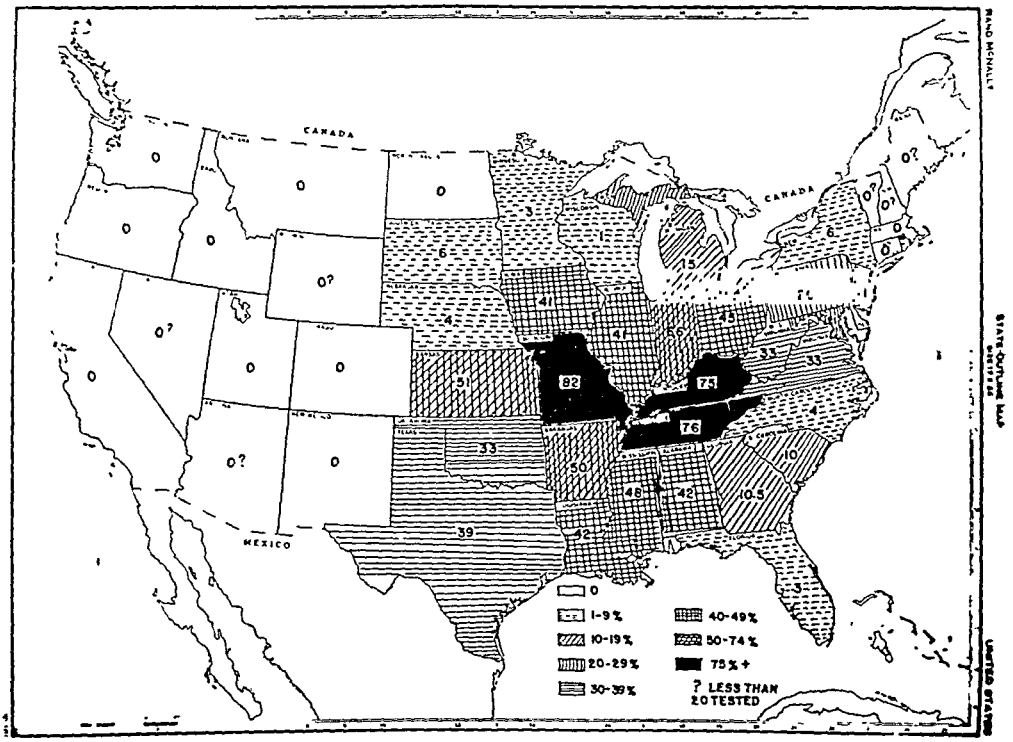
Percentage of Histoplasmin Reactors by States of Residence

Survey of Army Airforce Personnel Compared with Other Surveys

	Current Survey			*Palmer* [22]			*Christie-Peterson* [19]			*Other Studies*		
		Positive			*Positive*			*Positive*			*Positive*	
	No. Tested	*No.*	*%*	*No. Tested*	*No.*	*%*	*No. Tested*	*No.*	*%*	*No. Tested*	*No.*	*%*
United States	3,264	788	24.1	8,141	1,699	20.9	1,255	720	57.4	..	..	..
1. Alabama	41	17	42	26	6	23	77	36	47	1,200 Negro 923 White		15* 4*
2. Arizona	2?	0	..	20	1	5	1?	0	..	..	..	..
3. Arkansas	60	30	50	34	18	53	19?	9	47	..	..	..
4. California	301	0	0	1,195	67	6	5?	1	..	..	..	..
5. Colorado	57	0	0	460	4	1	1?	0	..	..	..	..
6. Connecticut	27	0	0	8?	0	..	4?	3	..	..	..	..
7. Delaware	4?	0	..	6?	0	..	0?	..	..	..	..	..
8. Dist. Columbia	11?	5	46	31	14	45	2?	0	..	..	..	..
9. Florida	38	1	3	70	3	4	30	6	20	..	..	..
10. Georgia	57	6	11	23	0	0	43	5	12	..	..	..
11. Idaho	35	0	0	12?	0	0	0?	..	..	..	..	..
12. Illinois	195	80	41	67	24	36	13?	3	23	..	..	..
13. Indiana	71	47	66	38	25	66	11?	6	55	..	..	..
14. Iowa	93	38	41	132	29	22	1?	0	..	..	..	..
15. Kansas	73	37	51	408	159	39	2?	1	..	..	..	..
16. Kentucky	36	27	75	22	17	77	56	47	84	..	..	..
17. Louisiana	52	22	42	326	70	22	11?	4	36	..	..	..
18. Maine	12?	0	0	4?	0	0	0?	..	..	..	..	..
19. Maryland	28	6	21	502	154	31	3?	1	..	..	..	..
20. Massachusetts	65	0	0	17?	3	18	2?	0	..	..	..	..
21. Michigan	91	14	15	598	49	8	6?	1	..	..	..	..
22. Minnesota	90	3	3	937	38	4	1?	0	..	..	..	..
23. Mississippi	63	30	48	71	20	28	32	19	59	..	..	..
24. Missouri	149	122	82	389	310	80	11?	8	73	610	..	79†
25. Montana	35	0	0	23	0	0	0?	..	..	..	..	..
26. Nebraska	46	2	4	159	12	8	0?	..	..	..	..	..
27. Nevada	7?	0	..	16?	3	19	0?	..	..	..	..	..
28. New Hampshire	6?	0	..	4?	2	..	1?	0	..	..	..	..
29. New Jersey	69	1	1	42	1	2	61	5	8	..	..	..
30. New Mexico	21	0	0	50	5	10	1?	0	..	..	..	..
31. New York	253	14	6	88	8	9	76	8	11	..	..	..
32. N. Dakota	47	2	4	37	1	3	12?	4	33	..	..	..
33. N. Dakota	25	0	0	88	1	1	0?	..	..	..	..	..
34. Ohio	141	63	45	762	459	60	9?	5	..	5,087 170	.. 76	47‡ 45¶
35. Oklahoma	79	26	33	40	15	38	9?	4	..	..	..	..
36. Oregon	48	0	0	7?	0	..	1?	1	..	..	..	..
37. Pennsylvania	201	40	20	883	121	14	39	8	21	..	..	..
38. Rhode Island	15?	0	0	1?	0	..	0?	..	..	..	..	..
39. S. Carolina	40	4	10	11?	0	0	27	4	15	121	1	1§
40. S. Dakota	33	2	6	96	1	1	0?	..	..	..	..	..
41. Tennesse	58	44	76	10?	4	40	611	505	83	..	..	..
42. Texas	197	78	40	61	21	34	27	7	26	..	..	..
43. Utah	34	0	0	15?	1	7	0?	..	..	..	..	..
44. Vermont	6?	0	..	1?	0	..	0?	..	..	..	..	..
45. Virginia	48	16	33	48	7	15	15?	5	33	..	..	..
46. Washington	81	0	0	16?	0	0	1?	0	..	..	..	..
47. West Virginia	30	10	33	86	23	27	14?	3	21	..	..	..
48. Wisconsin	80	1	1	122	2	2	2?	0	..	..	..	..
49. Wyoming	13?	0	0	79	1	1	1?	0	..	..	..	..

Note: ? signifies less than 20 tested. No percentages calculated if less than 10 tests.
* Welch & Berry, Birmingham, Ala., children [29]
† Furcolow, High & Allen, Kansas City, Mo., Adult White Males [30]
‡ Prior & Allen, Ohio Univ. students [31]
¶ Sontag & Allen, Ohio children [32]
§ Waring & Gregg, Charleston, S. C., children [33]

transient exposures have sufficed to provide coccidioidal infections. Mere automobile or train travel through an endemic area has resulted in infection. Therefore, we felt justified in not "crediting" histoplasmin sensitization to a "home state" where native sons who had been in constant residence



(Map reproduced by courtesy of Rand McNally & Co., Chicago)

FIGURE 4—Percentage of Histoplasmin Reactors among Army Air Force Personnel Classified by States of Residence

showed no sensitivity while the few reactors had definite histories of residence elsewhere in areas with a high proportion of positive histoplasmins. The failure to allocate these reactors results in a somewhat lower percentage of reactions in the group in which allocation by states was made than in our overall tests. Of the 3,376 tested, 25.6 per cent reacted to histoplasmin. Of the 3,264 (111 fewer) in whom the allocation could be made to states, 24.1 per cent were reactors.

In Figure 4 we see the geographical distribution of dominant histoplasmin sensitivity by states. The numerical presentation in Table 3 also tabulates the findings of two other published surveys, that of Palmer's group of nurses [22] and that of Christie and Peterson's college group at Vanderbilt University.[18] The table also indicates certain published local surveys.[29-33] The surveys by Palmer and by Christie and Peterson agreed with ours in broad aspects. Table 4, presenting the states in order of their proportion of positives, emphasizes this agreement very strongly. Two other large "local" surveys also agreed closely. The Kansas City study by Furcolow, *et al.*[30] had 79 per cent reactors compared with our 82 per cent and Palmer's 80 per cent for Missouri. Prior and Allen's life-time Ohio residents (university and nursing students) [31] had 47 per cent reactors compared to our 45 per cent while Palmer's were somewhat higher, 60 per cent. In general, the states of the Missouri, Mississippi, Ohio, and Tennessee valleys had maximal incidence. The New England states and the Pacific Coast and Rocky Mountain states were free. Texas was notable, in that dominant histoplasmin sensitivity

TABLE 4

Percentage of Histoplasmin Reactors in Three Reported Surveys with States Arranged in Descending Order of Proportion of Reactors

	Current Survey		Palmer		Christie	
	Rank	% Pos	Rank	% Pos	Rank	% Pos
Missouri	1	82	1	80	3?	73
Tennessee	2	76	1?	40	2	83
Kentucky	3	75	2	77	1	84
Indiana	4	66	3	66	5?	55
Kansas	5	51	8	39	?	
Arkansas	6	50	5	53	6–7?	47
Mississippi	7	48	13	28	4	59
District of Columbia	8?	46	6	45	?	
Ohio	9	45	4	60	?	
Louisiana	10	42	16–17	22	?	36
Alabama	11	42	15	23	6 7	47
Illinois	12	41	10	36	?	23
Iowa	13	41	16–17	22	?	
Texas	14	40	11	34		26
Virginia	15–16	33	18	15	?	33
West Virginia	15–16	33	14	27	?	21
Oklahoma	17	33	9	38	?	
Maryland	18	21	12	31	?	
Pennsylvania	19	20	1?	14		21
Michigan	20	15	21	8	?	
Georgia	21	11		0		12
South Carolina	22	10	?	0		15
South Dakota	23	6		1	?	
New York	24	6	20	9		11
Nebraska	25 26	4		8	?	
North Carolina	25–26	4		3	?	33
Minnesota	27	3		4	?	
Florida	28	3		4		20
New Jersey	29	1		2		8
Wisconsin	30	1		2	?	
California		0		6		

Note ? signifies less than 20 tested No percentages calculated if less than 10 tests

was confined to the east and center, with its arid west and south, areas of coccidioidal endemicity, providing no dominant histoplasmin sensitivity. Our other attempts at allocation by counties were not revealing, as numbers were too small. We could not develop any significant figures for Arizona, for practically all of those claiming Arizona as their home reacted dominantly to coccidioidin. As we have seen, the histoplasmin cross-reactions in persons who have undergone coccidioidal infections are frequent. Doubtless this fact accounts for our major discrepancy with Palmer's findings, where he had 6 per cent reactors in Californian nurses. Moreover, his state breakdown gave Area II in the central section of California, which included a considerable amount of the coccidioidal endemic area, as 17.6 per cent reactors, compared with the low of 3 per cent in the northern part of California outside the coccidioidal endemic area.

The freedom of the Pacific Coast and Mountain states from dominant histoplasmin sensitivity is also supported by the absence of cases of histoplasmosis acquired in California. It is true that 2 cases of histoplasmosis have been reported from California. Tissue sections from the first reported case were thought to be Leishman-Donovan bodies but when they were sent to Meleney, he identified them as *Histoplasma*. The history as given by Crumrine and Kessel [34] stated that the patient was a Negro male who lived in the back country of Louisiana and worked in saw mills in Texas, moving to the Los Angeles area of California in the spring of 1927. The onset of his fatal illness was given as approximately October of 1927. Incidentally, his pulmonary x-rays showed

scattered calcifications. The second case was listed by Meleney [8] and reported by Martin and Silber.[35] We are indebted to Meleney [36] for the information that this patient was born in Tennessee and had been in the Los Angeles area 4 years before death. As she was a diabetic, alcoholic and morphine addict, and had had staphylococcal abcesses in various parts of her body several years before her final illness, the duration of her histoplasmosis would seem uncertain. Indeed, Meleney in writing us mentioned that he had just reviewed the sections of the adrenal where organisms had been noted and found an area of calcification therein which had been overlooked previously. He commented: ". . . the calcification is interesting in connection with the recent developments in histoplasma infections."

We recovered *Histoplasma* from a sinus tract on the thorax of a veteran in a California veterans' hospital, but he had come from Arkansas. Another patient from whose buccal lesions Johnstone recovered *Histoplasma* at the University of California Hospital [37] had lived in the central states. With physicians, and especially pathologists, conditioned by coccidioidomycosis to be on the alert for mycotic infections, it seems unlikely that any significant amount of fatal but undetected histoplasmosis would be occurring in California. The fact that a few cases of histoplasmosis have been detected, all traceable to the central states, is further evidence against failures of diagnosis. It would clarify matters if future tabulators of the geographical distribution of reported cases of histoplasmosis would at least indicate the possibility that the cases reported from California were acquired in the central United States.

The freedom of the New England area was commented on by Parsons and Zarafonetis [38] in their 1945 review of 71 cases of histoplasmosis. Noting that over half of these cases had been reported from states lying along the Mississippi River and its main tributaries (Michigan being the sole exception), they added: "We are unable to attribute definite significance to the facts or fact that *no* cases have been reported from the New England states." The same aspects of geographic localization of histoplasmosis in the United States have been borne out by more recent reviews of reported cases.[39, 40]

A small number of soldiers, 17 in all, had been born in Europe and spent some years there. All were histoplasmin-negative. One member of the Women's Army Corps from Puerto Rico was positive. Five histoplasmin reactors with home states (California, Connecticut, Idaho, Maine, Washington) outside the histoplasmin endemic area of the continental United States and without residence or service in it, had two or more years of Army service in Panama. One naturally recalls that the site of Darling's discoveries was Panama and that recently Tomlinson and Grocott reported the recovery of *Histoplasma* from a dog of the Canal Zone.[41] Two years ago a 7 year old child was examined for admission to Stanford Convalescent Home. A lesion in his pulmonary roentgenogram was thought to be a primary tuberculous focus, but his Mantoux test was negative. His histoplasmin was four-plus. His entire 2 years' residence in the United States was in San Francisco, and he had come directly from San Salvador where he had been born.[42] Certainly, Central America would seem to offer excellent opportunities for the study of histoplasmin sensitivity and pulmonary calcifications in non-reactors to tuberculin.

Admittedly, distribution of histoplasmin sensitivity is not proved to be the exclusive result of infection by *Histoplasma capsulatum*. The published [17–20] and unpublished [43] studies by Christie, Peterson, and McVicars at Vanderbilt, and the reports by Bunnell and Fur-

colow[27] do provide evidence increasingly incriminating *Histoplasma* as one very important element. While Groover, *et al.*[26] reported inability to demonstrate *Histoplasma* in bone marrow, sputum or lymph nodes of 7 strong reactors to histoplasmin, negative to cocidiodin and tuberculin, such recoveries would not have been anticipated. Comparable coccidioidin reactors, even with residual pulmonary lesions, would not have *Coccidioides* recoverable by similar procedures unless they had pulmonary cavities. The critical studies of Emmons, Olson, Bell, and their associates,[23, 28] while indicating the potential usefulness of histoplasmin, have emphasized the necessity of its careful evaluation, especially with respect to association with pulmonary calcification. In this regard it is noteworthy that one-third of the 102 Ohio children with pulmonary calcifications studied by Sontag and Allen[32] reacted neither to histoplasmin nor to tuberculin.

Certainly, the geographic distribution of histoplasmin sensitivity indicates the presence of a specific cause or causes, themselves occurring in restricted areas. Sensitization by a widespread fungus like *Candida albicans*[44] or by penicillin,[26] while theoretically possible because of cross-reactions which have been demonstrated, does not offer a very plausible explanation since geographic localization would be unexplained. However, the fact that histoplasmin reacts so frequently in coccidioidal infections and that there is such marked cross-reaction with experimental blastomycosis indicates the possibility of sundry mycotic infections.

Recently W. L. Potts, Medical Director of Franklin County (Ohio) Tuberculosis Hospital[45] informed us of 3 patients who had never left Ohio and who reacted to coccidioidin but not to histoplasmin. Knowing that *Coccidioides* does not occur naturally in Ohio, we must assume either exotic coccidioidal infections or the existence of another mycotic infection which, at least occasionally, evokes cross-reactions to coccidioidin. Certainly it is theoretically possible for other mycoses to produce infections with cross-reactions to histoplasmin. However, if histoplasmin sensitivity is the result of infections by several agents, these infections must still be restricted in distribution to account for the geographical distribution of histoplasmin sensitivity. Moreover, while the infection spectrum[4] of coccidioidal infections indicates that 60 per cent are completely inapparent, the infection or infections responsible for histoplasmin sensitivity are even less manifest.

Thus far, despite diligent searches, the etiology of the only reported clinically apparent infections associated with dominant histoplasmin sensitivity have been by *Histoplasma*.[20, 27] The search must continue and, in the meantime, assumption that histoplasmin sensitivity proves an infection by *Histoplasma* is uncritical. Fortunately, from a diagnostic point of view, coccidioidin has proved much more specific, though, as we have seen, it has its definite limitations when used singly. A "battery" of several skin testing agents used at their appropriate "critical titers"[24] may be advisable, although every attempt should be directed to obtaining purified and specific material.

SUMMARY

Simultaneous coccidioidin and histoplasmin skin tests were performed on normal military personnel and others undergoing coccidioidal infections using 1:100 coccidioidin and either 1:100 histoplasmin from Christie and Peterson (Vanderbilt University) or 1:1,000 histoplasmin from Emmons (National Institute of Health). Among 3,376 healthy persons negative or equivocal to coccidioidin, 26 per cent reacted dominantly to histoplasmin. Equivocal and

occasionally positive coccidioidin reactions in individuals who had no opportunity of acquiring coccidioidal infections were found exclusively in the group of histoplasmin reactors. The stronger the histoplasmin sensitivity, the more frequent and larger the nonspecific reactions to coccidiodin. The nonspecific coccidioidin reactions were not so great as to interfere with interpretation, especially when interpreted in the light of the reaction to appropriate dilution of histoplasmin. However, if strong (1:10) coccidioidin was used as it must in some forms of coccidioidal infections, the hazard of a positive nonspecific reaction was considerable.

The histoplasmin test in dominant coccidioidin reactors showed a much higher degree of cross-reaction In 31 persons negative both to coccidioidin and histoplasmin, subsequent coccidioidal infections evoked sensitivity and concomitantly positive histoplasmin as well as coccidioidin reactions. Simultaneous blastomycin, histoplasmin, and coccidioidin tests in patients undergoing coccidioidal infections showed nonspecific cross-reactions of the blastomycin and histoplasmin approximately to the same degree. Again, the greater the sensitivity to coccidioidin, the greater the frequency and the size of the cross-reaction. Comparisons between the two histoplasmins used showed no significant difference in specificity, but the 1:1,000 N.I.H. histoplasmin was equivalent to 1:100 Vanderbilt material. If the former was used in 1:100 dilution, it frequently evoked larger reactions in coccidioidal patients than did 1:100 coccidioidin.

The presence of histoplasmin sensitivity in 6 persons who had been outside the area of dominant histoplasmin sensitivity for 10 years, with 3 longer than 20 years, bespoke its persistence.

The geographic distribution of dominant histoplasmin sensitivity disclosed reactions in four-fifths of those from Missouri, three-fourths from Tennessee and Kentucky, and concentric diminutions of positives until the New England, Rocky Mountain, and Pacific Coast states appeared virtually devoid of reactors. This was in close agreement with other studies. It indicated extensive inapparent infection, probably by *Histoplasmin capsulatum*, with or without some additional fungus or fungi with which histoplasmin cross-reacts extensively.

Histoplasmin appears to have limitations due to its cross-reactions, but used in appropriate relative strength, it, and coccidioidin, are valuable in the diagnosis and epidemiological investigation of pulmonary lesions.

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Isolation of the Virus of Newcastle Disease from Human Beings

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NEWCASTLE disease (Avian Pneumoencephalitis) is one of the more recent diseases affecting poultry in the United States. In young birds it produces respiratory and nervous symptoms, whereas in older birds the symptoms are primarily of a respiratory nature. The causative agent is a filtrable virus which closely resembles human influenza virus A & B. (Burnet [1]).

In the United States the Virus has attacked primarily chickens and turkeys; however, all of the common barnyard fowls are susceptible. In 1947, Reagan and coworkers [2-4] showed that the virus was adaptable to certain mammals such as the Syrian hampster and Rhesus monkey by the intracerebral route. Mice, guinea pigs, and rabbits were relatively resistant.

The first report of this disease in fowls was by Kraneveld in the Dutch East Indies in 1926, and the following year Doyle reported the isolation of the causative agent at Newcastle-on-Tyne in England. Since that time it has spread over many countries throughout the world. Earliest reports on its occurrence in the United States were by Beach in California in 1941.

The disease as observed in the United States has differed from that encountered in other countries in that the mortality has been low in adult birds, whereas in other countries it has been almost 100 per cent.

Although much has been written about Newcastle disease in poultry, only six reports in literature mention its occurrence in human beings. Of this number only two mention the recovery of the virus. In 1943 Burnet [5] described a laboratory infection (conjunctivitis) due to the accidental entrance of live virus into the human eye. Anderson,[6] in 1946, reported two other laboratory infections of man in Australia. All patients showed a conjunctivitis, and Newcastle virus was recovered from the tears.

Shimkin,[7] in 1946, recorded a case of conjunctival hemorrhage in a worker at the Government Poultry Laboratory in the northern district of Palestine. While circumstantial evidence seemed to indicate Newcastle virus as the causative agent, virus isolation was not reported. During the same year a small epidemic of contact infection by Newcastle virus occurred in employees at the Agricultural School, Mikveh, Israel, where an outbreak was occurring in the poultry flock. The cases were confined mostly to women kitchen personnel.

Howitt [8] and coworkers reported on the presence of neutralizing antibodies of Newcastle disease virus in human sera in the United States. McGough,[9] in 1949, also reported the presence of Newcastle neutralizing antibodies in sera of human beings who had become ill following the ingestion of cooked chicken. However, as far as is known, no reports have been made of the recovery of Newcastle disease virus from any human infections in the United States. Since there is a marked differ-

ence in the disease as it occurs in the United States compared to other countries, it appeared desirable to offer the following reports of recovery of the virus from apparently infected human beings in Ohio.

A broiler plant operator, P. N., brought several chickens to the Poultry Diagnostic Laboratory, College of Veterinary Medicine, Ohio State University on October 19, 1948, for diagnostic purposes. The history and symptoms shown by the birds were indicative of Newcastle disease. This was confirmed by isolation of the virus and hemagglutination inhibition (H.I.) techniques. It was noticed that the flock owner had a definite conjunctivitis of the left eye. Upon questioning, he stated that the condition had been observed 3 days after the sickness was noticed in his flock and had been present for 3 days but was now apparently improving. Gross examination revealed edema of the lids, marked hyperemia of the scleral and conjunctival vessels, and a definite mucopurulent discharge. No general symptoms had been noted, and medical aid had not been employed.

METHODS OF VIRUS ISOLATION

With his permission, a sterile cotton swab was placed in the medial canthus of the affected eye; and the recovered exudate placed in 1 ml. of sterile nutrient broth and incubated at room temperature for approximately 30 minutes. The material was frozen at — 18° C. and held under this refrigeration for 7 days until fertile hen's eggs of the proper stage of incubation were available. The material was then thawed and treated with approximately 5,000 units each of penicillin and streptomycin and left at room temperature for 30 minutes. Three fertile hen's eggs incubated at 37° C. for 9 days were each inoculated into the allantoic cavity with 0.15 ml. of the supernatant fluid. The shell openings were sealed with paraffin and the eggs further incubated at 37° C. Each of the embryos was dead on the morning of the third day following inoculation. Material from the dead embryos transferred to blood agar medium failed to show bacterial growth. Using the methods recommended by the B.A.I.,[10] cell-free allantoic fluid from the dead embryos agglutinated fowl red cells; and agglutination was inhibited specifically by anti-Newcastle-disease virus immune serum.

Three fertile hen's eggs incubated at 37° C. for 9 days were each inoculated with the stock solution of the antibiotics. All embryos remained alive and active, and the mixture was considered to be free of the virus.

Using techniques recommended by the B.A.I.,[11] the titer of the virus as determined by egg embryo inoculations was found to be 10^{-7}. Serum neutralization tests were indicative of Newcastle virus.

Two susceptible cockerels (H.I.-negative) approximately 6 months old and one Newcastle vaccinated hen (H.I.-positive) were inoculated with the above virus. Four days later a very slight respiratory involvement (moist rales) was noted in the 2 negative cockerels, whereas the vaccinated bird revealed nothing. Blood drawn from these birds 10 days after their injection was strongly positive on H.I. tests in all 3 birds.

A blood sample from P. N. approximately 1 month after having the conjunctivitis revealed strongly positive H.I. titer. No neutralization tests were conducted on this sample.

Virus from the original isolation was sent to the Pathological Division of the Bureau of Animal Industry in Washington for final confirmation. Their report is shown in Table 1.

A junior veterinary student, R. M., autopsied 1 chicken having a history and symptoms suggestive of acute Newcastle disease on November 21, 1948, and 2 chickens with symptoms of acute

TABLE 1

	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^8	10^9
N. Virus					3/3	3/3	3/3	1/3	
Newcastle Disease Antiserum	0/3	0/3	0/3	1/3					
Normal Avian Serum					3/3	3/3	2/3	1/3	

Newcastle disease on November 22, 1948. The diagnoses on these cases were confirmed by isolation of the virus and H.I. techniques. On the evening of November 23, 1948, his wife called his attention to a redness and swelling of his right eye; however, the condition did not seem painful. The following day he placed bichloride of mercury ointment in the affected eye and attended classes. Gross examination at that time revealed edema of the lids and hyperemia of the scleral and conjunctival blood vessels. Dr. Maurice L. Zox of the Student Health Service, Ohio State University, who examined the eye. described the conjunctivitis as "a granular type involving the palpebral conjunctiva." A sterile swab was placed in the medial canthus of the eye and gently moved laterally along the lower lid; and this material was then placed in 1 ml. sterile nutrient broth, to which 5,000 units each of penicillin and streptomycin were added. The mixture was incubated at room temperature for 30 minutes and was injected into 4 fertile eggs which had been incubated at 37° C. for 9 days. Two embryos died on the third day following inoculation; and the allantoic material was reinoculated into 4 12 day old incubated eggs. Forty-eight hours later all embryos were dead and the allantoic fluid was harvested. Material from the dead embryos transferred to blood agar medium failed to show bacterial growth. Cell-free allantoic fluid from the dead embryos agglutinated fowl red cells, and agglutination was inhibited specifically by anti-Newcastle disease virus immune serum.

The titer of the virus isolated, as determined by egg inoculation, was 10^{-8}, and serum neutralization was indicative of Newcastle virus. Serum neutralization tests conducted by the Pathological Division of the Bureau of Animal Industry on virus from the original isolation confirmed our diagnosis of Newcastle virus and gave the following results (Table 2).

TABLE 2

	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^8	10^9
N. Virus					3/3	3/3	3/3	3/3	1/3
Newcastle Disease Anti-serum	0/3	0/3	0/3	0/3					
Normal Avian Serum					3/3	3/3	3/3	3/3	1/3

The conjunctivitis persisted for 1 week in the student and gradually disappeared. No ill effects were noted other than a mild irritation which continued for 3 days after the onset.

SUMMARY

Two natural occurring cases of conjunctivitis thought to be due to the virus of Newcastle are reported. One case occurred in a broiler plant operator on whose premises Newcastle disease was in progress; and the second case was a veterinary student who, in the course of his clinical work, autopsied 3 chickens affected with acute cases of Newcastle disease. In the broiler plant operator, the virus identification was confirmed by hemagglutination, hemagglutination inhibition, serum neutralization techniques, and antibody response in chickens.

In the case of the student the virus identification was confirmed by hemagglutination, hemagglutination inhibition, and serum neutralization.

In addition to the above, virus sent to the Pathological Division, U. S.

Bureau of Animal Industry was identified as Newcastle virus.

This is believed to be the first reported case of the isolation of the virus of Newcastle disease from man in the United States.

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Public Health Degrees 1947–1948

The January, 1949, issue of the *American Journal of Public Health* carried the Report on Public Health Degrees and Certificates which has been compiled by the Committee on Professional Education annually for the past 15 years As in previous years, the report on the academic year 1947–1948 contains valuable information on enrollment, the professional backgrounds of the students, the degrees offered and the degrees granted by the various universities Because of the special concern which the Engineering Section Project has had in training of engineers and sanitarians, the material this year is more complete than previously with respect to the postgraduate degrees in sanitary and public health engineering; in addition the findings of a special study on undergraduate students and degrees in engineering and sanitation are included. Two summary tables only were published in the January *Journal*. A set of 10 additional detailed tabulations in multilith form is available free on request from the office of the Association

Morbidity Surveys

The Morbidity Survey in Public Health Work *

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THE methods of measuring the characteristics, habits, and opinions of representative samples of our people have advanced rapidly in recent years. We have been learning to use what people have to say about themselves and their families, not only to satisfy the public's curiosity about itself but also to supply the needs of government and business planning and scientific research. It is natural, therefore, that we should be hearing more and more about plans to use the layman as an informant for acquiring data on morbidity in the general population. The idea is not new to public health people. In this country morbidity surveys based upon house-to-house canvasses date back to before the beginning of this century. But the supply of new information from this source is by no means keeping up with the demand. In the field of public health we are seriously hampered by lack of up-to-date and reliable figures on illness rates, the need for medical care, and the facilities for supplying it.

Certainly one of the reasons why the morbidity survey has not been used more frequently is the cost of this type of work, which is by no means trivial. Yet the amount of money required is no greater than is now spent to secure facts about the labor force or about livestock, or corn, wheat, and cotton crops. But when there is public recognition of this unbalanced state of affairs, shall we be ready with knowledge of how best to plan a survey—a survey that will combine what we have learned from past projects of this type with the new techniques of interviewing developed in the field of attitude research and with the rapid advances that have been made in population sampling methods? And do we know just what types of statistical data the health officer and epidemiologist most need? Have we, in fact, even convinced them that information on illness provided by these surveys is of value?

If we define a morbidity survey as it is ordinarily understood, as "any canvass of households or individuals for the purpose of collecting statistics on illness and closely related subjects, such as medical care and public health," that definition does not restrict the manner of selection of respondents nor the type of respondents to be used. They may be physicians asked about their patients, housewives asked about the members of their households, or individuals asked about themselves. In fact, the canvass may not involve an interview at all. It may depend instead upon the use of some diagnostic procedure, such as a physical examination, an x-ray, a blood test, or a blood-pressure reading. Whether this last type of investigation falls under the heading of a morbidity

* Excerpts from the remarks of the moderator in opening the Panel Discussion on Morbidity Surveys before a Joint Session of the Biometrics Section of the American Statistical Association, Biometrics Society, and the Statistics Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

survey, is open to some question, but it is certainly worth bearing in mind that this is the *only* type of canvass that will provide information on illness of which the individual himself is unaware.

Another sort of inquiry is that in which the information is secured from a physician, or from hospital or clinic records. This type may be very important, since in some situations nothing less than a professional opinion can be used. An example would be the cancer surveys of the sort carried out by the National Cancer Institute.

The three kinds of survey I have specifically mentioned correspond to three levels of awareness of illness. The diagnostic survey is the only one that can pick up illness of which the individual is unaware. The household survey or survey of individuals in the general population can only catch illness which the sick individual recognizes, but it can be made to cover unattended as well as attended cases. On the other hand, the doctor as an informant can only give information about illness that has been brought to his attention, that is, attended illness.

The topic of this panel discussion is restricted to morbidity surveys in which individuals are asked about their own health or the health of other members of their household, and which make use of diagnostic techniques and medical records only as validation or extension of the information obtained from such informants. This sort of survey has been singled out for discussion because it is the one which seems to hold out the most immediate hope for supplying us with additional estimates of the incidence and prevalence of illness which we so badly need.

Pre-Engineering Inventory

Recognizing the need for guidance to students about to enter college, the Engineers' Council for Professional Development has prepared a pamphlet, *Pre-Engineering Inventory,* to give advice to those students who may be contemplating the field of engineering. Discussion of this activity is contained in the 16th annual report of ECPD now being distributed. According to the report, 20,000 copies of *Pre-Engineering Inventory* have been distributed to various universities, high schools, preparatory schools, etc. A companion report, *Engineering as a Career,* found sales for another 20,000 copies during the year 1948–1949. The annual report summarizes the first year of accreditation following the disruption of the program during the war years. During the year 1947–1948, 40 institutions were visited where 125 curricula were reinspected and 46 were inspected for the first time for the purpose of accreditation. ECPD is located at 25 West 39th Street, New York 18.

Morbidity Surveys

Planning the Morbidity Survey *

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IN planning the type of morbidity survey we are discussing this morning there are a number of decisions that have to be made. Each of these decisions is influenced by the particular purpose which the survey is to serve. Hence, it is first necessary to have that purpose clearly in mind. There should be one objective to which all others are secondary, and the survey should be designed with this major objective in view.

The preliminary decisions that have to be made can be grouped under three headings:

1. Defining the things we want to measure.

2. Defining the sample, including the units of sampling, the method of selection of the units, the method of estimating from the sample, and the sort of sampling error expected from this sampling plan.

3. Defining the interview, how it is to be conducted, who is to be considered an acceptable informant for the various persons in a household unit, who will do the interviewing and how the questions will be asked.

In this last category, also, we might place the decisions on the types of validation that we shall try to get; not only the validation of diagnostic and other information given us in the interview but also the tests of interviewer consistency and of the degree of understanding that exists between interviewer and informant. These are difficult things to tackle, but at our present stage of knowledge of morbidity survey techniques they are highly necessary.

In order that our sampling statisticians may design the best possible samples for us, we must supply them with as much information as possible about how morbidity rates vary. We are particularly short of statistics showing the geographical variation of morbidity. Such information is needed by the sampling man in order that he may determine whether it is necessary to spread the sample to many areas or whether it can be concentrated in a relatively few areas, thus cutting down the cost.

The sampling problems are by no means independent of the problems relating to definition of desired measures and design of interview. For example, if the primary interest is in measuring the amount of chronic disease in the population, we should prefer to visit a large number of households even if we visited each household only once. On the other hand, if our chief concern is with the acute communicable diseases, we shall do better to select fewer households and visit them repeatedly since we can obtain the same number of person-years of experience and more accurate information on date of onset

* Excerpts from remarks presented at a Joint Session of the Biometrics Section of the American Statistical Association, Biometrics Society, and the Statistics Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

and duration at a lower cost. Obviously, therefore, the matter of where the chief emphasis is to be placed affects the sample design.

In the Public Health Service we feel that we have now acquired a good deal of experience in working with the various measures of morbidity, incidence, prevalence, average duration, and the like. We have learned quite a lot about the interrelationships of disabling and non-disabling illness, bed illness, hospitalized illness, numbers of visits by doctors and nurses, classification of illness, and so on, and about the age-sex variation of these measures in specific communities. We have made the least progress in solving the problems relating to the interview itself. It is hard to frame objective questions to bring out illness that has not been attended by a doctor and has not been disabling in some specific manner, such as requiring the man to stay home from work or the child to stay home from school. Most serious chronic diseases that are recognized by the individual have at one time been attended by a doctor. If they had not been attended, then the individual usually would not know what he had anyway.

But what about the unattended, non-disabling illnesses? The individual is certain that he has been sick or is sick, but he has not seen a physician, and he still keeps on with his work. There is a lot of illness that comes under this heading. Surveys on the common cold alone prove that. Some of it is illness which *would* be attended under a system of prepaid medical care. Although some of it is minor, some of it may represent the unrecognized onset of a serious disease. The person may have been suffering from symptoms which he does not know how to diagnose himself and for which he has never yet consulted a physician nor taken any sick leave from his job. Are we to let this unattended and non-disabling illness go? If not, we are surely going to be involved in some intricate problems of attitude measurement, or something closely akin to attitude measurement.

Perhaps the health officer and epidemiologist will tell us that such illness is too ill-defined to be worth bothering about, but if it is determined to be part of what we want to measure, then we particularly need the help of the attitude research people to teach us how to frame our questions.

Life Insurance Medical Research Fund 1949 Grants

Early in March the Life Insurance Research Fund made grants totaling $585,000 to 35 universities and research centers in the United States and Canada for 53 different heart disease research projects. It also allocated $95,000 for the support of 18 graduate and 9 undergraduate research fellows who will work under the supervision of experienced investigators. One student will work in the Zurich, Switzerland, Pharmacological Institute.

The Research Fund at the same time announced the following additions to its professional advisory council:

Alfred Blalock, M.D., Johns Hopkins University

William S. Middleton, M.D., University of Wisconsin

Max M. Wintrobe, M.D., University of Utah

Morbidity Surveys

A Morbidity Survey of the Population *

NATHAN KEYFITZ

Mathematical Adviser, Dominion Bureau of Statistics, Ottawa, Canada

CERTAIN of the problems which arise in surveying morbidity are general; they are identical with those of surveys of the labor force, of blood types, of potato production. Other problems are specific to morbidity. Separation of these two groups has the advantage that we can bring to bear on investigations made by students of public health, experience gained in many other branches of statistical work. Since morbidity is not a field in which I have worked I can make a contribution, if at all, only in showing how the survey methods developed in other kinds of work may be applied in yours. I merely raise for your discussion one or two devices whose usefulness in other fields is now proved, and which have been brought into special prominence recently by the Sampling Sub-Commission of the United Nations.

Morbidity can be surveyed by asking questions of at least three different "units" — (a) households, (b) individuals, and (c) doctors. For any of these units a probability sample may be devised.

If households are the ultimate sampling unit they may be chosen at random among all the households of the country, or with some benefit in reduced variance, after division of the country into strata. This implies the existence of up-to-date lists for the whole country. If such lists are not available but good maps are to be had, one may choose certain large areas at first, then sample within these, etc., making the choice at random in each stage. Any sample which is to be visited should be concentrated in some fashion, so that the enumerators collectively will not have to travel over every part of the country; this method of concentrating it is known as area sampling and can be made unbiased so that every individual resident stands a known chance of inclusion. This was the type of sample used within cities in the pioneer effort of the National Health Survey in 1935–1936, conducted by the U. S. Public Health Service.

Some of the misunderstanding of the nature of sampling which has been prevalent during the past few years may have been cleared up by recent events. While it is often possible to select purposively those elements which seem most representative, or to obtain a sample by simply asking enumerators to fill quotas from among their friends or whoever else seems to them representative, yet any operation which proceeds in this manner involves very serious risk. If the man who designs the sample and oversees the tabulation has so close knowledge of the subjects that he can judge accurately what the population is like, it is indeed not necessary to have a probability sample. It happens, unfortunately, that one can never know whether the universe is as one thinks or different in respect of the subject of inquiry; this ignorance is why

* Excerpts from remarks presented at a Joint Session of the Biometrics Section of the American Statistical Association, Biometrics Society, and the Statistics Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

one samples at all. The Sampling Sub-Commission of the United Nations was very emphatic in its last session that quota methods cannot be relied on.

After we have in some way selected a set of areas, we are up against the fact that when we go to the individuals in them with a set of questions we will find that they have only a vague and approximate idea of their state of health and morbidity. We can of course do better than was done in a morbidity survey with which I was associated; as part of the Canadian National Registration of 1940 everyone was asked what was the state of his health, and he replied good, fair, or bad, with no definition of these terms. The tabulation reporting that there were 539,340 Canadians in bad health, etc., was not a major contribution. If we sample doctors instead, and work from their files, we may get more specific returns; but these are only for those people who have visited doctors, and it is not easy to avoid giving double weight to those who have visited two doctors, etc.

The question of accuracy of individual response can most efficiently be handled by selection of a subsample to constitute a second phase of the investigation. From the second phase respondents additional information is obtained which will enable corrections to be made on the first phase. This is the common sense principle which is involved in any proper conduct of a census, for example, where a check is made on the original enumeration by some kind of sample, and ideally even a further check is made on the sample by a subsample.

Thus, the initial area sample, clustered for accessibility, stratified at each stage for efficiency, would survey morbidity on such diagnosis of ailments as individuals, or their mothers, wives, etc., are capable of making. We may even suppose these are subject to so great an error of reporting that totals based upon them would be entirely useless. The returns as obtained from this survey may then be sorted according to the "folk" diagnoses which were received. A small sample, stratified according to these diagnoses, consisting of one household out of twenty (the sampling proportion perhaps varying with the stratum, i.e., the ailment), would be visited by a doctor or public health nurse. This official would ascertain which of the persons having arthritis, etc., in their own estimation had it in his. These would be subject to an addition for the number having arthritis according to medical diagnosis who did not themselves state it. The result of the second phase would be a series of ratios of numbers, e.g., of persons having arthritis on medical opinion to numbers of persons thinking they had arthritis, which would be available for correcting the results of the first sampling.

This is a device which can be used to secure accurate diagnosis and reasonably high sampling precision when very few doctors or nurses are available for the job. A nice mathematical problem —for a simple case of which a solution has been presented—is to specify how much enumeration is required in the first phase and how much in the second phase, when we know, as the result of a small pilot survey, the cost of enumerating in each phase, the accuracy of reporting in the first phase, and the accuracy required in the final result.

Morbidity Surveys

The Contribution of the Survey Method to Epidemiology *

ALEXANDER D. LANGMUIR, M.D., F.A.P.H.A.

Associate Professor of Epidemiology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md.

MY remarks will be confined largely to the simple morbidity surveys conducted by trained, but non-medical, investigators who interview a sample of the general population. More complex surveys, utilizing professional personnel or laboratory diagnostic techniques, I shall class as special studies.

I accept a broad definition of epidemiology as the science concerned with understanding the factors related to the occurrence and distribution of disease in the population. Epidemiology must consider both the sick and the well in their relation to each other and to their environment.

The morbidity survey is a particularly useful epidemiological tool in that data on both the sick and the well are obtained concurrently. The problems arising from underreporting of cases, from arbitrary classifications of causes of death, and from unknown shifts of population between census years are largely eliminated.

Morbidity surveys are of special value in the study of the acute respiratory group of diseases and the chronic illnesses, for which routine sources of data are grossly inadequate or nonexistent. The survey method, however, is not restricted to these two groups of diseases, but may be applied to many illnesses. Its unique advantage lies in the detailed information that can be collected about the population. Frequency rates, specific for a wide variety of social and environmental factors, can be determined. Such comparisons are not obtainable by matching routine morbidity reports and death certificates with census figures.

The simple morbidity survey has one inherent limitation—only general data about disease can be obtained. The questions asked by the interviewers must be simple and understandable to the informants. Few specific diseases can be adequately counted by this method. Special studies are necessary to collect such definitive epidemiological information.

Therefore, the simple morbidity survey must be restricted to the study of broad groups of disease. We can expect from such surveys measures giving only gross orders of magnitude for prevalence, seasonal variation, and for the degree of disability, and correlations giving only limited associations with the specific social and environmental factors we can measure for the sample population.

These crude observations may be most valuable. They form the stuff from which new ideas generate. They make possible the formulation of epidemiological hypotheses. They are most useful in designing special studies.

* Excerpts from remarks presented at a Joint Session of the Biometrics Section of the American Statistical Association, Biometrics Society, and the Statistics Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

In conducting morbidity surveys for epidemiological purposes, three points should be kept in mind:

1. The index for measuring the disease must be carefully chosen. The common striving to measure the total incidence of disease is a forlorn hope. Such an objective is contrary to the nature of disease itself. With rare exceptions, disease and health merge imperceptibly with each other. An index that is carefully defined and consistently followed is a first essential.

Indices vary in their usefulness. For example, it is of little value to learn that 10 per cent of a sample population said they had a cold last week. That is opinion. What is the definition of a "cold"? It is much more useful to learn that 3 per cent were in bed for one or more days with a cold last week. Such a figure is based on a definable index, understandable to the interviewer and to the informant alike. This index can be employed week after week in a consistent fashion. The results of one survey can be compared with another survey when such an index is used.

2. The choice of the sample population should be made with reference to the specific objectives of the study, rather than with the view to calculation of rates for the whole population. Such an extrapolation may be important in attempting to forecast an election or in estimating the overall need for medical care facilities. It has little basic value to epidemiology. To generalize from a sample implies an understanding of all the important factors influencing the occurrence of disease. If these were all known, there would be little epidemiological reason to conduct the survey. It is the function of epidemiology to elucidate the factors. Therefore, it is the internal comparisons within the sample that are important to epidemiology. The samples should be chosen to provide for the greatest differences in age, in crowding, in economic status, in environment, or whatever factors we wish to study. Such morbidity surveys provide the greatest opportunities for a better understanding of epidemiological problems.

3. Repeated surveys of the same individuals in the population provide more useful information than the single survey. The latter gives but a static measure at one moment. The former reveals the flow of disease through the community. It is from the study of these dynamic processes of disease that epidemiological understanding comes.

Through morbidity surveys, a small mountain of data can be collected with relative ease. Such data will be useful for epidemiological purposes if the questions asked be compatible with the inherent limitations of the method, if appropriate indices be selected for measuring disease, if the population sample studied be suitable to the questions involved, and if observations be maintained consistently and repeatedly over a period of time.

Morbidity Surveys

The Local Health Officer and Sickness Surveys *

HUNTINGTON WILLIAMS, M.D., F.A.P.H.A.

Commissioner of Health of Baltimore City

For confidence in statistics, like sausages, you must have knowledge of three things: Who made them, From what materials were they made, and For what purposes were they made.

From *Sir Arthur Newsholme*, 1921

THIS member of the panel, as a medical health officer, has been asked to discuss whether or not it may be desirable to make morbidity surveys a regular function of the health department; and further, whether the diagnostic material thus collected from lay informants would be reliable and valuable.

It is true that during the past fifteen years and more a good deal of this sort of information has been gathered in the Eastern Health District of Baltimore, especially with the aid of Dr. W. Thurber Fales, the City Health Department's Director of Statistics, and Dr. Lowell J. Reed and other coworkers in the Johns Hopkins School of Hygiene and Public Health. These cumulative family studies, based on repeated household inquiries, provide an unmatched backlog of information against which special health investigations may be placed for study. This has been done in syphilis, in tuberculosis, and for other health conditions. The Eastern Health District material was used by Jean Downes and Selwyn D. Collins as in their paper "A Study of Illness among Families in the Eastern Health District of Baltimore," in the *Milbank Memorial Fund Quarterly* of January, 1940. Such use of sickness survey material was of value to the Baltimore City Committee on Medical Care in laying the groundwork for the newly established Baltimore City Medical Care Program within the City Health Department. I am led to believe, however, that small scale local sample surveys compounded into a general national series of figures would be of little value on a local basis and that such small scale sampling surveys would probably not be desirable as a routine function of a local health department.

National figures, such as the monthly sickness surveys published by the British Ministry of Health, may have some meaning for the statistically minded, but for local interpretation they may be misleading in the way that a national weather forecast might be valueless when used on a local basis.

There is no doubt that the local health officer would welcome more exact information on the amount of illness, beyond the reported communicable disease cases, that occurs within his jurisdiction. He would like to know the types and causes and duration of such disabilities. He will do his best to cooperate with those who desire to make such investigations. However, he will be dubious about the reliability of "medical facts" and "diagnoses" provided by lay informers. For instance, when do common colds become an out-

* Excerpts from remarks presented at a Joint Session of the Biometrics Section of the American Statistical Association, Biometrics Society, and the Statistics Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

break of grippe, and when does a series of outbreaks of grippe become an epidemic of influenza, in the absence of a lively series of press releases resulting from some colds among the staff of the local newspaper, perhaps in November or February, when the temperature is changeable and it is wet underfoot? Or, when is poliomyelitis not poliomyelitis in the absence of paralysis or detectable muscle weakness?

Sir Arthur Newsholme and Dr. Otto Eichel, who was Dr. Hermann M. Biggs's statistical director in Albany, have taught us to be careful in our use of statistics, and Frost used to tell us in the 1930's that diphtheria might just be on a long-range decline, and that all the credit perhaps should not be given to the toxoid we were pumping into the children. On the other hand, Godfrey's studies of the statistics of measles have made it clear that the health officer must aim at preventing measles *deaths* under 3 years of age and not at preventing measles *cases* in school age, as earlier health officers vainly and mistakenly tried to do.

Let me close with some comments recently made by Dr. Charlotte Silverman on the need for care in interpreting the significance of the crude results of mass x-ray surveys of various local groups for tuberculosis control:

"There are many confusing variables. They relate to the manner in which the groups are selected for mass radiography and the extent of participation of the group members; to the radiographic equipment employed; the extent to which reading of small films is supplemented by large films; to the skill and experience of the film reader; to the extent to which x-ray interpretation is supplemented by follow-up clinical and laboratory investigations; and, finally, to the criteria used in defining and classifying 'cases' of tuberculosis upon which rates and estimates are based. While mass radiography of the chest undoubtedly has its place in the epidemiologic attack upon tuberculosis, the values and limitations of this procedure have not yet been clearly delineated."

In spite of what has been said, this member of the panel wishes to state that he is enthusiastic for whatever will result in better planning and execution of morbidity surveys. However, he feels there is a real need for a clearer understanding of the many pitfalls that stand in the way of success in this difficult field of endeavor. Also, further consideration is needed in order that future surveys may be planned so as to be more useful to the local health official if he is expected to be an active collaborator in such survey efforts.

How Processing Affects Nutritive Values of Grain Foods*

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SET a starving man down in a vegetable garden and he could quickly stay his hunger; but set him down in a field of wheat—and he would remain hungry. This paradox arises from the fact that wheat, like all the grain crops, usually requires fairly extensive processing before it is acceptable as food for the human being. The results of such processing, and their correction through enrichment and related means, are a significant element in the nutritional welfare. For the grain foods today remain, despite a gradual decline in their consumption during the 20th century, the largest single major food group in this country. In the United States, 6 grains are consumed by human beings in sizable amounts. They are, approximately in the order of their preponderance, wheat, corn, rice, oats, rye, and barley. Wheat is by a large margin the major American cereal and wheat and corn together constitute some 90 per cent of total human grain consumption.[1]

Preparation of the grains for food use may be segregated into 4 basic procedures: (1) milling, (2) manufacture, (3) restoration of nutrients to original levels, and (4) supplementation with nutrients to augmented levels.

MILLING

The first of the 4 basic procedures, *milling*, is applied to practically all of the grains consumed in this country. For example, census reports on the flour industry reveal that less than 2 per cent of the wheat flour manufactured is the whole grain product, the remainder being milled white flour.[2] Milling, as is well known, comprises removal of the outer chaffy husk or hull from the grain kernel, followed by separation of the bran coats and the germ or embryo. The endosperm remains; this may be left whole as in the instance of rice, may be broken into coarse particles like corn grits, or may be ground fine to make meals and flours.

Various "undermilling" processes exist that are designed to retain part of the bran and germ in the portion of the grain used for food. In addition, methods are available for transfer of nutrients from the outer layers of the grain kernel to the endosperm, prior to milling.[3-5] At present such procedures have limited use.

MANUFACTURE

After milling, some cereal foods, like rice, are prepared for consumption by merely boiling. Preparation of other grain foods, namely bread and related baked products, macaroni and noodle products, and ready-to-eat breakfast cereals, involves the second phase of processing, which we have designated as *manufacture*. Manufacture frequently enhances nutritive value because of nutritious ingredients, such as milk or eggs, customarily added to certain products at this time. The only nutrient loss of moment during manufacture is a reduction in thiamine resulting from the heat

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of baking bread and similar foods, and from other heat treatment, such as toasting, applied in the making of prepared breakfast cereals.[6] This reduction is readily corrected. For example, in the making of enriched bread a surplus of thiamine of approximately 20 per cent is added to the dough, to offset heat losses during baking. In the making of prepared breakfast cereals, a fortifying mixture is frequently sprayed upon the product after toasting, while the product is still hot enough to dissipate the moisture of the spray, but not hot enough to affect thiamine. Grain food processors have little concern with the protection from destruction by light of factors like riboflavin. Furthermore, oxidation-labile factors like ascorbic acid do not occur in significant amounts in the grains, so that these industries have no problem with prevention of oxidative nutrient losses. It is of interest to note that a fortuitous increase in iron content frequently occurs, during both milling and manufacture, as a result of the use of iron and steel equipment.

RESTORATION OF NUTRIENTS

We have seen that consumers in general demand grain foods in the milled form, and also that major grain foods in addition undergo the processing involved in manufacture. Since milling removes the nutrient-rich bran and germ, it produces a significant change in nutritive value; and manufacture, as has been shown, may cause an additional loss of thiamine. The practical solution to the problem of these losses has proved to be *restoration of nutrients,* which has been designated as the third of the 4 basic operations in cereal processing. Restoration is practical because synthetic vitamins, and wholesome assimilable mineral salts, are inexpensive and available in plentiful supply, and because such vitamins and minerals may be added to grain foods without altering flavor or appearance.

The nutrients selected for addition to grain foods, and the levels used, are based on various standards and recommendations. The U. S. Food and Drug Administration has promulgated definitions and standards of identity for enriched flours and farina,[7] enriched macaroni products and enriched noodle products,[8] and enriched corn grits and enriched corn meals.[9] A similar definition and standard of identity for enriched breads and rolls was proposed in 1943,[10] and has been the basis of a practical program since then. For breakfast cereals, the Food and Nutrition Board of the National Research Council has recommended nutrients and levels for fortification.[3] No standards or recommendations are available for fortification of rice, but such fortification is now practised to a limited extent on a voluntary basis, using the nutrients and levels of the official enriched flour standard, with riboflavin omitted because its yellow color would be foreign to the product.[11]

Flours and meals are enriched by use of a powdered vitamin-mineral premix having the same fine particle size as the product. This premix is blended with the flour at the mill by means of continuous automatic machinery, in a proportion of ½ to 1 ounce per 100 lb. of flour. Enrichment of grain foods of large particle size, such as corn grits or rice, at first presented serious difficulty. A powdered premix added to such products would not remain uniformly distributed, and furthermore would be leached out by the water used for the washing and cooking these foods undergo before consumption. The clever expedient developed to overcome these difficulties is the use of actual corn grits or rice kernels that are impregnated with the enrichment nutrients in a high concentration, and then coated with an edible, water-resistant film. This film helps protect the nutrients against losses in washing and cooking. The "super-enriched"

particles do not differ significantly in appearance from the rest of the product. The concentrations of added nutrients in the super-enriched particles are so designed that for corn grits they are mixed into the product in a ratio of 1 lb. to 800 lb., for rice in a ratio of 1 lb. to 200 lb. These proportions assure that servings of the foods as normally eaten contain the proper concentration of enrichment nutrients.

Enriched bread may be made by using enriched flour, but commercially produced bread is frequently enriched by means of enrichment wafers. Considerable research was necessary to design such enrichment supplements, in order to provide the desired nutrient levels, but still avoid exceeding the maximum limits that are imposed by the standards. The possibility of exceeding maximum limits arises from the fact that the regular bread ingredients are significant sources of the enrichment nutrients. Thus the yeast used to leaven bread provides roughly 3 per cent of the thiamine, 13 per cent of the riboflavin, and 4 per cent of the niacin in enriched bread. White flour contributes 15 per cent of the thiamine, 9 per cent of the riboflavin, 25 per cent of the niacin, and over 40 per cent of the iron. When dry nonfat milk solids are included in the bread formula in the frequently used proportion of 3 lb. to 100 lb. of flour, they supply 19 per cent of the riboflavin in enriched bread.

Macaroni and noodle products made in continuous presses are enriched by a procedure similar to the one described for flour; when made by means of batch operations they are enriched by use of wafers similar to bread enrichment tablets. A fortified dry yeast preparation is also supplied to this industry for enriching purposes.

SUPPLEMENTATION WITH NUTRIENTS

Enrichment levels for riboflavin, as we shall see in a moment, transcend the restoration principle in that they go considerably higher than the levels found in natural whole grains. Therefore, the discussion just concluded of *restoration of nutrients* has impinged upon our fourth and final fundamental operation in the processing of grain foods, *supplementation with nutrients*. Calcium is included as an optional ingredient in the enrichment standards, also at levels ranging considerably higher than those found in the original grain. Vitamin D is the second optional enrichment ingredient, and since this vitamin does not occur in the grains in significant amounts, its use is tantamount to supplementation rather than restoration.

The nonfat dry milk solids frequently used in commercial breads have been shown to contribute riboflavin; this ingredient also enhances protein value and adds calcium. Other nutritive supplements permitted by federal standards of identity for grain foods include various milk products, eggs, wheat germ, soya products, and inactive dry yeast. Recently published reports show the nutritive advantages gained by such supplementation.[12-14]

CUMULATIVE EFFECTS

Having reviewed the fundamentals of the effects of the various phases of cereal food processing upon nutritive values, let us consider these effects in quantitative terms, choosing for illustration the leading grain food, bread. Table 1 shows values for thiamine, riboflavin, niacin, and iron in whole

TABLE 1

Nutrient Values of Various Breads
Milligrams per Pound

	Whole Wheat Bread	*Unenriched White Bread*	*Enriched White Bread*
Thiamine	1.3	0.3	1.5
Riboflavin	0.7	0.3	1.2
Niacin	15.9	3.6	12.5
Iron	11.3	3.6	10.3
Calcium	276	236*	550

* 300 mg. per lb. when made with 3 lb. nonfat milk solids per 100 lb. flour.

wheat bread, unenriched white bread and enriched white bread. Calcium is shown for whole wheat and unenriched white breads, for bread enriched to the level provided as optional in the proposed standard, and for bread not enriched with calcium but containing the frequently used 3 lb. of nonfat dry milk solids per 100 lb. of flour.[15] Values for whole wheat and white breads are variable; those shown were chosen arbitrarily from one of the standard reference manuals.[16] Values for enriched products also may vary within the limits imposed by the standards; shown here are median values.

All 5 nutrients are, of course, lower in the white bread than in the whole wheat bread, as a result of the milling of the flour. Enrichment, however, accomplishes restoration to approximately whole grain levels for thiamine, niacin, and iron. For riboflavin, in contrast, enrichment produces a level considerably higher than that in the original grain. This high level results from the rationale followed in establishment of the enrichment standards, which leaned as much toward correction of recognized dietary deficiencies as toward restoration of whole grain levels. This policy has been set forth at length by the Food and Drug Administration.[17]

Calcium, like riboflavin, rises well above whole grain levels if enriched to median values. When not added by enrichment, but provided by a commonly used percentage of milk solids, calcium returns to approximately whole grain levels. Baked foods made with enriched self-rising flour also supply high levels of calcium, as this nutrient is required rather than optional in enriched self-rising flour, and the maximum calcium level set by this standard is over twice as high as the maximum set for regular enriched flour.[7]

PRESENT EXTENT OF ENRICHMENT

During the late World War emergency, enrichment of all bakers' white breads and rolls was required by War Food Order No. 1 of the War Food Administration. This order is of course no longer in effect during current non-emergency times. The only laws at present requiring enrichment are those enacted by various states. At this writing approximately half of the states have in effect laws requiring enrichment, and presumably others will consider such legislation. All of the state enrichment laws include wheaten foods, and a number of the southern states, where much corn is consumed, extend the enrichment requirement to corn products. Enrichment was widespread on a voluntary basis before any mandatory enrichment laws existed, and at present, data on the sale of enrichment preparations in states not having such laws indicate that voluntary enrichment is still carried out on a large scale.

SUMMARY

In general, consumers demand grain foods in milled and manufactured form. These processing operations reduce certain nutrients present in the original grains. Since cereals are a major American food, this nutrient loss originally constituted a serious nutritional problem. The practical answer to this problem has proved to be enrichment, restoration, or fortification, mainly by the use of synthetic vitamins and assimilable mineral salts. The rationale followed in establishing enrichment levels has led on occasion to concentrations of nutrients higher than those in the natural whole grain. This fact, plus the customary use of supplementary nutritive ingredients in the making of certain grain foods, means that in some respects the milled and manufactured products may be more nutritious than the grains from which they are made.

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Courses in the Diagnosis and Treatment of Poliomyelitis

The National Foundation for Infantile Paralysis, Inc. announces short courses in the diagnosis and treatment of poliomyelitis patients for physicians as follows:

Training Center	*Scheduled Courses*	*For Detailed Information and for enrollment write to:*
Children's Hospital Boston, Mass.	June 13–17 Aug. 15–19	William T. Green, M.D.
City Hospital Cleveland, Ohio	July 18–23 Aug. 8–13 Aug. 29–Sept. 3	John A. Toomey, M.D. Dept. of Contagious Diseases
D. T. Watson School of Physical Therapy Leetsdale, Pa.	1–3 weeks, depending on need of each individual. Dates to be specially arranged.	Jessie Wright, M.D. Medical Director
Georgia Warm Springs Foundation Warm Springs, Ga.	3–6 months, starting July 5, and October 3.	Robert L. Bennett, M.D. Director of Physical Medicine
Stanford University School of Medicine San Francisco, Calif.	3 days—probably the second week in July	W. H. Northway, M.D. Assistant Dean
University of Colorado Medical Center Denver, Colo.	May 23–28 Nov. 14–19	Winona C. Campbell, M.D. Director of Poliomyelitis Teaching Program

Nutrient Retention During Canned Food Production*

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IT is well established that the nutritive values of foods at the time of consumption may be conditioned by operations involved in home preparation or in commercial food processing. Kitchen procedures such as boiling, baking, broiling, or roasting employed to render raw foods edible or acceptable reduce the amounts of certain nutrients initially present in the raw materials.[1-5] Likewise, operations in commercial milling, dehydration, freezing, canning, or other food preserving industries may also affect the nutrient composition of raw foods. The mechanisms causing these changes have been described elsewhere.[6]

In the current National Canners Association-Can Manufacturers Institute Nutrition Program[7-9] controlled studies under commercial conditions were made to develop more complete information on the effect of canning operations on nutrient retention in raw foods. These investigations were designed to avoid the criticisms[6] which can be applied to similar investigations in the past in which results on small scale laboratory packs have been extrapolated to commercial practices. Two general types of retention studies were made; the so-called "overall" vitamin retentions of the complete canning procedure, and specific retentions during particular operations within canning procedures.

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ESTIMATION OF VITAMIN RETENTION

In work on vitamin retention during canning, several methods for expressing the results obtained may be used. The most common method is to compare the vitamin content of the raw material and the finished canned product per unit weight, calculated on the dry basis. This method is not free from criticism but it is the most convenient yet suggested. From the standpoint of practical nutrition the errors involved are of questionable significance. Likewise, expression of vitamin retention in terms of percentages, rather than by comparison of the initial and final vitamin content simplifies handling of the data. Consequently, these two conventions have been followed in the following discussions.

OVERALL VITAMIN RETENTIONS

The so-called "overall" vitamin retention reflects the degree of vitamin conservation attained during the sequence of operations required to convert the raw material into the finished canned product. In this presentation, only vitamin retention data were considered which had been obtained during actual commercial canning operations in studies sponsored by the NCA-CMI program[10-12] or in related work undertaken in the authors' laboratories, both published[13,14] and unpublished.

Tables 1 through 3 present the overall ascorbic acid, carotene, niacin, ribo-

flavin, and thiamine retentions observed in a number of products during actual commercial canning operations. The products chosen for this illustration are subjected during canning to diverse operations which influence vitamin retention such as peeling, cutting, extraction, comminution, and so forth.[15] The overall vitamin retentions observed in the commercial canning of these representative foods should therefore reflect the general situation with respect to conservation of essential nutrients in canned foods as a class. For the purposes of this exposition, no distinction was made in certain instances for style of pack or variety. The data shown for asparagus may include both white and green asparagus packed as whole spears or cuts; Alaska and sweet peas have been considered together, and the available data observed for all varieties of green beans packed as whole beans or cut beans have been grouped. As indicated in the tables, the amount of available data varied from 4 observations made on the overall retention of carotene in yellow corn to 93 on the retention of ascorbic acid in grapefruit juice. Where 30 or more observations were available, frequency distributions were calculated and the maximum and minimum retentions shown represent the figures within which 90 per cent of the observations were found to fall. By this procedure, observations which were unusually high or favorable, or which were so low as to indicate atypical conditions, were eliminated from consideration.

With respect to overall ascorbic acid retention, the data (Table 1) indicate that the canning procedures used for asparagus and the citrus juices effect very high retentions of this nutrient; for the latter products, the minimum to maximum variations or ranges of retention are small and the mean retentions are more than 90 per cent. The range of retention of this vitamin in tomato juice is more variable and this is also true of the products subjected to relatively severe blanching procedures, namely, green beans, Lima beans and peas. In all the products shown, however, the mean percentages of ascorbic acid retention may still be considered substantial, especially if translated into the percentages of the daily adult requirement for ascorbic acid supplied by a usual or convenient serving of the foods. The data on carotene retentions, also shown in Table 1, substantiate the known fact that commercial canning procedures have only slight effects on this factor. The mean carotene retentions for the products listed range from 67 to 97 per cent.

The data on niacin retentions (Table 2) suggest that, for most of the

TABLE 1

Overall Ascorbic Acid and Carotene Retentions in Canned Foods

	Ascorbic Acid				Carotene			
		Per cent Retentions				Per cent Retentions		
Product	Number Observations	Max.	Min.	Mean	Number Observations	Max.	Min.	Mean
Apricots	10	97	76	87	10	98	77	89
Asparagus	32	100	80	92	..	..	..	..
Carrots	..	..	..	..	7	100	83	97
Corn, Yellow, W.G.	..	..	..	..	4	100	87	97
Grapefruit Juice	93	100	90	96	..	..	..	..
Green Beans	41	75	40	55	9	96	81	87
Lima Beans	10	100	60	76	..	..	..	..
Orange Juice	15	100	94	98	..	..	..	..
Peaches	21	91	59	71	7	100	59	85
Peas	43	90	45	72	12	100	88	97
Tomatoes	..	..	..	..	6	89	45	80
Tomato Juice	90	90	35	67	7	74	60	67

TABLE 2

Overall Retentions of Niacin and Riboflavin in Canned Foods

	Niacin Retentions				Riboflavin Retentions			
		Per cent Retentions				Per cent Retentions		
Product	Number Observations	Max.	Min.	Mean	Number Observations	Max.	Min.	Mean
Asparagus	22	100	77	96	26	100	65	88
Corn, Yellow, W G.	13	96	72	86	13	100	68	97
Green Beans	30	100	80	92	30	100	85	96
Lima Beans	11	100	77	85	12	100	50	87
Peaches	5	92	87	89			..	..
Peas	32	80	50	65	43	100	70	82
Tomatoes	6	100	92	98	6	100	100	100
Tomato Juice	17	100	83	98	17	100	86	97

TABLE 3

Overall Retentions of Thiamine in Canned Foods

		Per cent Retentions		
Product	Number Observations	Max	Min.	Mean
Asparagus	31	85	60	67
Corn, Yellow. W.G.	14	48	20	34
Green Beans	41	90	55	71
Lima Beans	15	67	32	47
Peaches	8	93	64	76
Peas	54	70	40	54
Tomatoes	6	100	89	96
Tomato Juice	18	100	73	89

products listed, the canning procedures involved have small effect on this nutrient. The lowest mean niacin retention was 65 per cent in the case of peas. For the remaining products, mean niacin retentions of 85 to 98 per cent were observed. Riboflavin retentions (Table 2) during canning are to be considered excellent from the standpoint of the ranges of retention and the indicated mean retentions which ranged from 82 to 100 per cent.

Great variability in overall retention is to be noted in the case of thiamine (Table 3). This factor is heat-labile and is also known to be extracted from foods during blanching operations. Acid products such as peaches, tomatoes, and tomato juice, which do not require blanching during preparation and which are customarily processed at 212° F., show high mean retentions of thiamine (76 to 96 per cent). The low-acid products (asparagus, corn, green beans, Lima beans, and peas) subjected to blanching, to relatively severe heat processes, or to both, show more variable ranges of retention and, in general, lower mean retentions (34 to 71 per cent). None of the products considered, however, can be regarded as an outstanding source of this nutrient even in the raw state, when compared with certain foods of animal origin.

RETENTIONS DURING BLANCHING

In addition to studies on overall nutrient retentions, surveys have been made of specific canning operations to determine which steps during the preparation and processing of canned food products are of most serious concern. Such step by step studies have revealed that blanching required in the canning of certain products is one of the operations where sacrifice of vitamin content may occur. Consequently, considerable effort has been devoted to investigation of this operation.

Experience has indicated that the blanching of raw vegetables in hot or boiling water or in live steam has distinct advantages. Blanching is used to obtain the desired appearance and

flavor in the final product, to effect proper fill of container and to reduce internal can pressure during heat sterilization by the elimination of air and other gases from the product and the container. There are other functions of the blanch, such as destruction of enzymes, but these are not commonly regarded as the primary objectives of the operation.

Any review of blanching schedules followed throughout the industry for the same product will show that the practices employed vary widely with respect to the time and temperature of blanching. Some canners have fixed blanching schedules to meet certain operational requirements. For the most part, however, blanching schedules have been set so as to attain desired or mandatory quality levels in the final product.

In most commercial canning operations, hot water blanching is employed in the preparation of certain vegetables for canning. This operation establishes conditions favorable to an extraction process whereby water-soluble nutrients, including the vitamins ascorbic acid, thiamine, riboflavin, and niacin, may be dissolved. The extent of such leaching depends upon the nature and maturity of the product, the amount of raw flesh of the vegetable exposed through cutting and bruising, and the time and temperature of the blanch. Where steam blanching is used, extraction of the water-soluble nutrients is not as great as may occur in hot water blanchers.

Information obtained in the NCA-CMI program surveys of specific operations of vegetable canning procedures,[10-12] together with information obtained in the laboratories of the authors, published [13] and unpublished, has been summarized and condensed to show the retentions of the above nutrients in blanched vegetables. The results of all of the commercial blanches studied are presented in Tables 4 and 5. The same conventions with respect to handling the data used in the case of overall retentions have been followed.

Ascorbic acid retentions during blanching (Table 4) reveal the best retentions for asparagus (mean—95 per cent), while the lowest and most variable retentions are to be observed for spinach (mean—67 per cent). To ex-

TABLE 4

Ascorbic Acid and Niacin Retentions During Blanching

	Ascorbic Acid Retentions				*Niacin Retentions*			
		Per cent Retentions				*Per cent Retentions*		
Product	*Number Observations*	*Max.*	*Min.*	*Mean*	*Number Observations*	*Max.*	*Min.*	*Mean*
Asparagus	26	100	74	95	8	100	77	94
Green Beans	38	90	50	74	29	100	60	93
Lima Beans	12	88	54	72	8	98	68	81
Peas	60	90	60	76	39	96	59	73
Spinach	41	99	6	67	34	100	63	83

TABLE 5

Riboflavin and Thiamine Retentions During Blanching

	Riboflavin Retentions				*Thiamine Retentions*			
		Per cent Retentions				*Per cent Retentions*		
Product	*Number Observations*	*Max.*	*Min.*	*Mean*	*Number Observations*	*Max.*	*Min.*	*Mean*
Asparagus	12	100	72	90	12	100	79	92
Green Beans	29	100	70	95	34	100	82	91
Lima Beans	8	100	59	76	12	77	36	58
Peas	37	87	67	75	60	100	73	88
Spinach	37	100	78	88	85	100	67	85

plain these variations, one has to know only that the comparatively small surface area of the asparagus, combined with the relatively short blanching time for the product, would tend to minimize destructive effects. In contrast, spinach is a product with a thin, extensive surface area due to its leaf-like character. Also, considerably more severe blanching conditions were imposed upon this product than was the case with asparagus, thus producing more favorable conditions for solution of water-soluble material. The retention of niacin during blanching (Table 4) suggests that niacin is more firmly bound in the products studied than ascorbic acid, since the retention generally seems to be of a higher order. It also appears that this vitamin is not as water-soluble as other members of the vitamin B-complex. Mean retentions of this nutrient for most of the products were in excess of 80 per cent. Riboflavin retentions during blanching (Table 5) are rather good in most vegetables with the exception of Lima beans where the range is rather wide. Lima beans and peas showed mean retentions of about 75 per cent; riboflavin retentions in the other products listed were in excess of 80 per cent.

The retention of thiamine during blanching is also portrayed in Table 5. One interesting item in this table is the low mean retention of thiamine in Lima beans, namely, 58 per cent, with a range of retention for this specific operation of 36 to 77 per cent. While niacin and riboflavin retentions for all five vegetables listed were generally of the same order, the retention of thiamine in Lima beans dropped to a mean of 58 per cent as compared to mean retentions of 76 and 81 per cent for riboflavin and niacin, respectively. While the data presented may be influenced by the number of observations involved, this finding might deserve further investigation.

RETENTIONS DURING THERMAL PROCESSING

The heat-labile properties of thiamine raise the question as to retention of this vitamin during heat sterilization of canned foods. Other nutrients seem little affected by this operation. The effect of the pH of the product being processed is of importance, although there is a difference of opinion as to the specific importance of this variable upon thiamine retention during heat sterilization. It has been postulated that there are materials in some products which stabilize thiamine toward heat and that these materials may be of considerable importance in effecting maximum retention of this particular nutrient. In general, products such as tomatoes and tomato juice which are sterilized at relatively low temperatures because of their low pH, have a high degree of retention of thiamine while low retentions are found in products such as whole kernel corn. These low retentions may be explained by the relatively severe heat process necessary for sterilization. Typical thiamine retentions in vegetables during commercial thermal processing are the data reported by Clifcorn and Heberlein[13] shown in Table 6. The effect of thermal processing upon the thiamine content of canned foods is conditioned to a large extent by the time and temperature relationship of the sterilization operation. This relationship is, in turn, affected by different can sizes and the nature of the product, with particular reference to whether heat transfer occurs by convection or by conductance during the thermal processing operation.

IMPROVED VITAMIN RETENTIONS

Since blanching is a major factor conditioning vitamin retention in certain canning operations, it has been the point of emphasis as far as present and future studies are concerned. Experiments are now under way on new types of experi-

TABLE 6

Thiamine Retentions During Thermal Processing

(After Clifcorn & Heberlein)

Product	Process		Can Size	Retentions During Sterilization Process (Per cent)
	Min.	° F.		
Asparagus				
Whole spears	14	248	300	66
Center cuts	14	248	300	63
Fancy cut	14	248	300	64
Corn, whole kernel				
White	30	250	2	31
Yellow	30	250	2	47
Green beans				
Whole, No. 3 sieve size	20	240	2	79
Cut, No. 4 sieve size	20	240	2	73
Lima beans				
Standard	30	240	2	71
Extra standard	30	240	2	58
Peas, sweet				
Unsieved, fancy	35	240	2	67
Unsieved, fancy	45	245	2	60
Unsieved, standard	35	240	2	67
Unsieved, standard	45	245	2	67
Peas, Alaska				
Sieve 1, fancy	35	240	2	64
Sieve 1, extra standard	35	240	2	63
Sieve 2, extra standard	35	240	2	61
Sieve 2, extra standard	35	240	2	64
Sieve 3, fancy	35	240	2	59
Sieve 3, standard	35	240	2	67
Sieve 4	35	240	2	64
Sieve 5	35	240	2	69
Tomatoes	35	212	2	89
Tomato Juice	20	212	2	74

mental blanchers embodying principles which might be more generally applied in commercial blanching in the future. With respect to existing equipment, studies on the effect of the time and temperature relationships in hot water blanching have revealed that the high-temperature short-time blanches are generally superior from the standpoint of maximum vitamin retention. In all instances this type of blanch yielded the same quality of product as obtained by low-temperature long-time blanches. With the green beans, the short-time high-temperature blanch was definitely superior from the quality standpoint. More detailed attention to the time and temperature relationships in hot water blanching, more extensive use of steam blanching, and possibly equipment improvement should reduce significantly the sacrifices of water-soluble nutrients during this particular step in the preparation of the products for canning.

New principles such as non-aqueous or steam pressure blanching also have been studied which would require radical changes in existing equipment. Preliminary work by Ives[16] has shown that very favorable ascorbic acid retentions result from application of these two new principles but their effect on final product quality may be questionable, or at best is still to be established. Consequently, the indicated approach to improved nutrient retention during blanching by modified use of existing equipment is to be considered the most practical at this time.

With respect to improved retention of heat-labile factors such as thiamine, the tendency of the canning industry is to

employ more high-temperature short-time processes. The value of such processes in thiamine retention have been shown by Greenwood, *et al.*[17] This work has also shown the effect of increased can size on vitamin retention in the same conduction heating product; namely, as can size increased, the degree of vitamin retention decreased due to the relatively more severe heat processes necessary for the larger sizes of container. Likewise, these investigators studied the relationship existing between vitamin retention at the periphery of the container and retention of the same vitamin in the center. It was found that a gradient of vitamin retention exists in conduction heating products, with higher retentions being observed at the center of the container. This is due to the fact that during long heat processes the product adjacent to the walls of the container receives a more severe heat treatment than that at the center of the can.

Greenwood, *et al.* also related the sterilizing value of the process (F_0) with respect to thiamine retention. It was found that with each 18° F. rise in temperature, the rate of thiamine destruction is approximately doubled while the rate of bacterial destruction is increased approximately tenfold. These data suggest that increased thiamine retention will result from application of high-temperature short-time thermal processing schedules wherever possible. The work of Greenwood, *et al.* has been confirmed by later studies, in which thiamine retentions in cream style corn and vegetable puree sterilized by high-short and conventional processing methods have been compared.[14]

New methods for agitation of foods during processing also have shown improved thiamine retention over conventional processing techniques.[18] Agitation during processing increases the rate of heat penetration into the container so that application of the necessary effective heat is attained in shorter time with increased retention of thiamine. Extended use of the high-short and agitating types of process should result in even greater retentions of heat-labile nutrients than is now accomplished commercially.

SUMMARY

Operations commonly involved in the home preparation or in the commercial processing or preservation of food may affect the initial nutrient compositions. Such operations are necessary to render food edible or attractive, attain required or desired levels of food quality, or insure the success of commercial food processing or preserving procedures.

A considerable volume of literature has been developed on nutrient retention during commercial canning, and the data obtained in major studies in this field are summarized and discussed. Vitamin retentions vary with the product and nutrient under consideration. However, raw products significantly high in specific nutrients remain significant sources after canning. Certain operations, notably blanching, are subject to improvement, and studies of this type currently in progress are described. The newer types of high-short thermal processing show considerable promise of improved retention of heat-labile vitamins in products to which such processes may be applied.

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Massachusetts Public Health Conference

The three day Massachusetts Public Health Conference promises a varied menu of well balanced professional nourishment. It will be held at the University of Massachusetts at Amherst, June 15, 16, and 17.

The opening session on Wednesday morning will be concerned with new horizons for public health personnel. In the evening, the Honorable Oscar R. Ewing and Dr. Morris Fishbein will discuss the National Health Program.

Thursday will be given over to a wide variety of subjects and will end with the annual banquet at which will be heard a widely known speaker—his name is a dark secret.

Friday morning promises to be the high spot of the conference. Experts in mental health, heart disease, diabetes, and other special programs will outline modern concepts and relate them to the general administrative program. Dr. C.-E. A. Winslow, as the luncheon speaker, will bring the session to an inspiring close.

The Possible Significance of Milk and Water in the Spread of Virus Infections*†

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SINCE milk and water have been incriminated in the spread of many bacterial diseases, such as dysentery, typhoid fever, undulant fever, tuberculosis, diphtheria, scarlet fever, septic sore throat, and tularemia, to name a few, one might assume that certain of the virus infections of man might be disseminated through these same channels. If one classifies virus diseases roughly into two groups, those whose routes of transmission are definitely known and those whose transmission is either unknown or suspected but not proved, we find that milk or water is involved in the dissemination of only one and possibly two of the agents whose mode of spread is known. This leaves a relatively small number of the second group of diseases.

Three of these diseases, herpes simplex, encephalomyocarditis, and infectious mononucleosis, to the best of my knowledge, have not been studied from the point of view of milk and water; probably because the latter has not been definitely shown to be due to a virus and because some form of contact seems most likely for the others.

Another infection of probable virus etiology, pretibial fever, recently described by Bowdoin[1] and by Daniels and Grennan,[2] has the interesting epidemiological characteristic that most of the cases in the two reported outbreaks had been swimming in or living near common water sources. No insect vector could be incriminated and further studies have not revealed the mode of spread, although Tatlock[3] was successful in passing the agent by inoculating fresh whole blood of infected individuals into young guinea pigs, hamsters, and embryonated eggs.

Thus, we are left with a consideration of 6 diseases, namely, inclusion blenorrhea or inclusion conjunctivitis, infectious hepatitis, foot-and-mouth disease, epidemic diarrhea of the new-born, Q fever, and poliomyelitis. These virus diseases of human beings are the only recognized ones with which milk or water or both have any possible relationship.

The first of these, inclusion conjunctivitis, is usually seen clinically as a disease of infants. The reservoir of the virus is a mild genitourinary disease of adults which is probably transmitted venereally and in which low grade nongonococcic urethritis is the lesion in the male and subclinical cervicitis in the female. The most common means of transfer to the eye is birth canal infection of infants during delivery. However, definite examples of inclusion conjunctivitis have apparently been contracted

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from swimming pools, the incubation period in each case being exactly 7 days. Genitourinary discharges into the water are the probable sources of contamination. There seems to be little doubt that chlorination and other methods of disinfecting pools have cut down the incidence but are not entirely prophylactic. Experimental studies have shown that the virus can survive in untreated water for as long as 6 hours.[4] It is thought that even in the presence of chlorine, water would be dangerous if freshly contaminated by discharges from an infected individual.

Infectious hepatitis is a disease which has commanded more and more attention during recent years and which was a significant factor among our troops during the recent war. Neefe and Stokes[5] have described an outbreak of this disease in a summer camp which was apparently water-borne. Three hundred and fifty of 572 individuals in the camp became infected within a period of 7 weeks, 255 of these resulting in overt jaundice. This epidemic was characterized by an unusually high incidence, the simultaneous infection of a number of persons at the camp not in personal contact with each other, and by the apparent ease with which the agent was acquired at camp in contrast to the few cases among those in contact with infected persons developing the disease away from camp after returning home. Epidemiological evidence clearly ruled out air, fomites, biting insects, food, milk, lake water, and personal contact in the transmission of the agent during this outbreak. Well water which was exposed to the discharges of the original case through cess pools seemed to be the reservoir of infection. By means of human volunteers the agent, which passed Seitz filters, was found to be present in the blood and feces of cases but not in nasopharyngeal washings, urine, or flies. Serum produced the disease in volunteers only when administered orally, not parenterally. Water from the well which was used by all the cases produced a mild illness associated with hepatic dysfunction, in 4 of 5 volunteers who subsequently were immune to the feces agent from other cases. Since bacteriological studies showed evidence of fecal contamination in this water and transmission experiments proved it contained an agent, this appears to be the first evidence of natural transmission to man of any virus agent by water.

Our laboratory observed an outbreak in a rural school group which resulted in jaundice of 41 of 74 pupils during a period of four months.[6] The source of infection was apparently water.

Gauld[7] in describing field studies of infectious hepatitis among troops in the Mediterranean Theater of operations was impressed with the fact that it seemed to be a disease of fall and winter, and he thought the epidemiological pattern was strongly suggestive of respiratory spread rather than by gastrointestinal or insect routes. However, he described one explosive outbreak in a mountain infantry regiment which was believed to have resulted from drinking contaminated well water.

Neefe, Stokes, Baty, and Reinhold,[8] using human volunteers who received feces infected water treated in various ways, found that the causative agent of infectious hepatitis was not inactivated or attenuated by a 40 minute period of contact with sufficient chlorine to provide a residual chlorine concentration of 1 p.p.m. after 30 min. of contact. Superchlorination (treating with sufficient chlorine to reach the "break-point" and provide a chlorine residual of 15 p.p.m. after 30 minutes' contact) resulted in a definite attenuation of the hepatitis agent. The agent was not completely removed or inactivated by treatment with sodium carbonate, aluminum sulfate or activated carbon. However the incidence of disease was lower, the in-

cubation periods longer, and the disease much less severe than in the control group suggesting a decrease in concentration of virus or a decrease in virulence, or both.

Further studies on disinfection of hepatitis contaminated water were reported by the Army Epidemiological Board.[9] Of 6 volunteers receiving untreated water, 5 developed hepatitis with the usual "short" incubation. Of 7 volunteers receiving the same water after filtration and coagulation, 3 developed the disease after a longer incubation period. None of 7 subjects given the same water after filtration, coagulation, and chlorination developed hepatitis. Thus, a 30 min. chlorine residual of 1 p.p.m. is probably sufficient to inactivate this agent *providing the water is properly treated prior to chlorination.*

That this disease may also be transmitted through contaminated milk supplies has been shown by Murphy, Petrie and Work[10] who incriminated this medium as the source of infection in a small outbreak of 10 cases in Georgia. All 10 cases drank raw milk from the same source and within the limits of the incubation period all developed frank jaundice. None of the non-consumers developed hepatitis although they were 20 times more numerous. Prior to the outbreak, 2 cases of the disease had occurred in a household adjoining that of the dairyman, and the 2 families had been in close, even intimate contact. The milk was handled in the open, 100 feet from a dilapidated surface toilet serving both families. Many flies were present. No evidence incriminating any other common source of infection for the 10 cases, either food or water, could be obtained. Although there was contact among some of these, the evidence did not support that means of dissemination. No virus studies were made.

Foot-and-mouth disease is a highly contagious infection of cattle, pigs, sheep, and goats, which, fortunately, is not a major problem in this country at the present time. While it is rarely transmitted to human beings, such transmission is effected by ingestion of virus contaminated food, handling the active agent (as in the laboratory), and by contact with infected animals. Since the virus is found in the blood, saliva, urine, feces, vesicular lesions, and milk of infected animals, such materials, as well as meat and dairy products, play an important rôle in the spread of infection. Boiling or pasteurizing of farm products should be adequate for control of this disease in the human population.

Epidemic diarrhea of the new-born is an acute, communicable disease of neonatal infants. The evidence that it is caused by a virus is fairly well established. Several laboratories[11-13] have isolated from stools of sick infants a filterable agent which is serially transmissible through young calves, and there is some evidence that the virus may be isolated on scarified rabbit corneas.[14-15] As far as is known the agent could be disseminated by any one of several ways, all of which reflect either respiratory or gastrointestinal contamination, which includes milk as a possibility. No sure method of controlling the disease is known except for avoiding upper respiratory infection and diarrhea among nurses and mothers and observing strict nursery technique which includes sterilization by autoclaving of the formulas.

The relationship of this disease to epidemic gastroenteritis recently described by Gordon, Ingraham, and Korns[16] is unknown. These authors reproduced the illness in series in human volunteers by oral administration of a filterable agent obtained from the stools and throat washings of adult institutionalized patients. The pattern of spread of the naturally occurring disease bore no apparent relationship to a common source distribution of milk, food, or water, and direct person to person contact was thought to be the mode of transmission.

Q fever, a rickettsial disease, is included in this review for several reasons. Rickettsiae are customarily classified with viruses rather than with bacteria on the basis of size, growth requirements, and other characteristics. The organisms causing Q fever, for example, are so small in some preparations that they are no larger than the elementary bodies of vaccinia and pass through Berkefeld N filters with ease. Furthermore, this rickettsial disease is in contrast with the spotted fever and the typhus fever groups, in that the transmission is not sharply defined as requiring an insect vector.

Epidemiological studies of Q fever have rather definitely implicated the cow with human infection. Derrick, Smith, and Brown [17] studying the disease in Australia found that 31 of 34 rural patients had close contact with cattle and 112 of 118 patients in the city of Brisbane had worked in meat works. Agglutinins for the organisms were found in the sera of some of the cattle. These workers, however, implicated ticks as playing some part at least in the transmission in that country.

The apparent lack of an insect vector in the American outbreaks and their explosive and isolated nature seems to be different from the picture in Australia. Shepard and Huebner [18] reported that 21 of 130 sera from cows in the Los Angeles area contained complement-fixing antibodies for the organisms. Although proximity to dairies by reason of residence or occupation was a common factor in more than 50 per cent of the 17 cases, none of them had intimate contact with cows suggesting some source of infection other than contact. Huebner and his coworkers [19] succeeded in recovering the rickettsia from the raw milk of 4 widely separated dairies. The organisms were not recovered from blood, urine, or feces of these cattle. The fact that nearly all the milk was transported before processing and much of it was sold raw suggested that infected milk might have served as the source of infection to man. Tests, as yet incomplete, indicate that the two methods of pasteurization in general use in large commercial milk plants have different effects on the organisms. The flash method, rendered the raw milk infected with rickettsia apparently non-infectious for guinea pigs, but the vat method, or 143° C. for 30 minutes, did not entirely inactivate all the organisms (unpublished data, Huebner, 1948).

Three apparently milk-borne epidemics of poliomyelitis have been described. Dingman [20] in 1916 reported 8 cases in 3 different boarding houses all of which used raw milk from the same source. Two children at the house of the dairyman had poliomyelitis prior to the onset of disease among these 8 whose onsets were all within a 2 day period. At one boarding house only those children who used the milk became ill, and among other families who used the same milk during this period, but who boiled it, no cases appeared.

Knapp, Godfrey, and Aycock [21] described an outbreak of 8 paralytic cases within an 11 day period among drinkers of the same raw milk supply. A boy employed at the dairy was milking cows and handling milk for a period of 4 days while in the acute stage of the disease. The 8 cases were further traced to one delivery of nights' milk while no cases occurred among those receiving mornings' milk from the same dealer. There was no record of direct contact between any of the cases and indirect in only 1.

Aycock [22] described a larger epidemic in Broadstairs, England, where the distribution of cases, in point of time, indicated simultaneous infection. Of a total of 75 cases, 69 could be associated with milk from one dealer. All the 43 paralytic cases used this milk. The milk was apparently pasteurized by the flash method only, in muggy weather, and was not bottled. No illness suggestive of

poliomyelitis had occurred in any of the dairy workers or anyone associated with the milk supply.

It is perhaps significant that the evidence incriminating milk in the above mentioned epidemics is based entirely upon epidemiological and clinical evidence. No virus studies were made on either the milk supplies or specimens from the cases.

Although some evidence is available to show that pasteurization temperatures are usually sufficient to inactivate poliomyelitis virus when suspended in water, the possible protective effect of milk on the virus, requiring higher temperatures for inactivation, has received scant attention. Lawson and Melnick [23] tested rodent adapted strains of virus and spontaneous mouse encephalomyelitis virus in both milk and water at different temperatures for 30 min. Their findings showed that a milk medium enables a 10 per cent suspension of the virus to withstand from 5 to 10° C. more heat for 30 min. than when the infected tissues were suspended in water and that milk seems to exert a protective action on destruction of virus by heat as may other proteins. The concentration of virus played a rôle in this phenomenon, the more dilute the virus suspension, the less heat being required to inactivate. However, with concentrated suspensions, occasional traces of virus could be detected after 30 min. at 65 and even 70° C. which is well above the usual temperature of pasteurization. However, there were no phosphatase controls and no evidence that thorough mixing had occurred. As previously mentioned, these experiments were performed with strains of murine poliomyelitis and information is still lacking on the susceptibility to heat of human strains of virus suspended in milk. A similar experiment performed by Ridenour but employing a setup more nearly approximating proper pasteurization technique and checked by means of the phosphatase test, showed that virus was readily inactivated under these conditions.[24]

The significance of water as a vehicle in the spread of this virus has been an enigma for years. Since Kling [25] reported the recovery of virus from well water used for drinking purposes by a case of the disease, this medium has been suspected but no one has duplicated his findings, with the possible exception of the report by Toomey, Takacs, and Weaver [26] who isolated an agent from creek water. In both these instances however, fecal contamination was not only possible but quite probable. In the latter case a drainage ditch containing sewage emptied into the creek near the source of water for these studies. Since the human intestinal tract represents the greatest single source of virus it is only natural that raw sewage has been found to contain it in large quantities. The repeated isolations of virus from sewage by Paul and Trask and others [27, 28] have not been a surprise, especially since the samples were usually taken near the outlet.

Since the virus of poliomyelitis is resistant to a wide variety of chemicals the efficacy of water treatment in removing this potential source of infection has been subject to much consideration, debate, and a certain amount of experimentation. Carlson, Ridenour, and McKhann [29] added virus to city water and to raw untreated water and simulated conditions of coagulation and sedimentation, sand filtration, absorption on activated charcoal, storage, and aeration. These procedures failed to remove the virus completely from such artificially, heavily contaminated water. The observers found that ultra-violet light from an artificial source has a greater effect on destruction of the virus than that exerted by direct sunlight and is more effective in inactivating or destroying virus suspended in water than any single purification method commonly utilized. The same authors [30] found

that activated sludge in amounts as low as 1,100 p.p.m. with 6 hours aeration will remove or inactivate virus as judged by infectivity tests in mice. Heavier concentrations of sludge with longer aeration periods largely eliminate the infectivity.

The effect of chlorine on poliomyelitis virus has been investigated by several workers. Kempf and Soule[31] found that a concentration of 0.55 p.p.m. did not inactivate the virus in 1.5 hr. but was effective after a 4 hr. period of contact. The residual chlorine was found to be 0.35 p.p.m. The same workers using calcium and sodium hypochlorite found that 1.0 p.p.m. for 25 min. had no effect on the virus.[32] After 4 hr. with a residual chlorine of 0.2 p.p.m. the material was still infectious. Their conclusions were that while virus can be inactivated by chlorine the amounts needed are greater than the normal residual concentrations carried in disinfection of drinking water and swimming pools and also that the time required to inactivate virus is beyond practical limits.

The above conclusions were based on the ether orthotolidine or the starch methods of determining residual chlorine which were standard at the time. These methods do not give true evaluations of the concentration of "free" uncombined chlorine or of any other solution containing ammonia or nitrogenous compounds. In the presence of such materials, chlorine compounds are formed which, although having higher oxidation potentials, have less disinfectant capacities.

By means of the orthotolidine-arsenite test it is possible to measure more accurately the concentration of "free" uncombined chlorine in the hypochlorous state in organically polluted solutions. Ridenour and Ingols[33] using this test found that a "free" chlorine residual of 0.2 p.p.m. will inactivate a 1:500 dilution of virus after 10 min. or 0.1 p.p.m. after 30 min. These amounts of "free" chlorine are well within the range of practical doses used in water treatment and in swimming pool sanitation. The effectiveness of "free" chlorine residuals is independent of the type of chlorine-bearing compound as long as the equivalent oxidation-potential of free chlorine exists.

Lensen, Rhian, and Stebbins,[34] using partially purified virus and testing for "free" chlorine and chloramine, found that 0.5 per cent virus was inactivated in less than 10 min. when the chloramine residual was as low as 0.05 p.p.m. if the pH was near neutrality. The outcome of their experiments suggests a decrease in the virucidal activity of chlorine with increasing alkalinity of the medium.

A recent survey by Dempster[35] of 121 cities having populations in excess of 25,000 produced evidence of another nature. It was found that cities with deep wells as sources of water supply had the highest case rates over the last 18 years, while those supplied by streams and lakes which would be more subject to contamination had the lowest rates. The lack of water treatment in the case of deep well water might possibly be significant but these wells were reportedly not polluted. Cities with little or no treatment of their water supply had the highest incidence of poliomyelitis and cities treating water by filtration and chlorination or softening had the lowest case rates. This is in general agreement with the report of Casey[36] on studies made in Louisiana. He found that communities with both water and sewerage systems had 26.6 cases per 100,000; those without either water or sewerage had 39.7 cases per 100,000; while those with water but without sewerage had 83.6 cases per 100,000.

In the latter type of community the rate was inversely proportional to the volume of water used, suggesting that large amounts of fluid might

serve as a dilution factor or a factor increasing the rate of flow.

Maxcy [37] has summarized the hypothetical relationship of water supplies to poliomyelitis in an excellent and critical review of the evidence up to 1943. His conclusions were that whether or not these methods of treatment are effective in inactivating or destroying the virus of poliomyelitis the fact remains that it has never been shown that the incidence of this disease is significantly associated with the quality of water supplies, and moreover no explosive outbreak has been shown to be attributed to the simultaneous exposure to a common source of water. Nevertheless, it does not seem impossible that fecal contamination of water in a supply system or a well might be a vehicle of transmission under certain conditions.

In summary, it is necessary to emphasize that, with the possible exception of infectious hepatitis, milk and water, if involved, do not represent the major vehicle in the transmission of any of the diseases herein discussed. The explosive, self-limiting character of certain epidemics of hepatitis, plus the experimental evidence of transmission by ingestion of infected material, points strongly to a common alimentary route of infection probably involving either milk or water supplies. Inclusion conjunctivitis is usually transmitted by direct contact and only occasionally through swimming pool water. Foot-and-mouth disease also is usually acquired through contact with infected animals and rarely through ingestion of dairy products. The exact mode of transmission of epidemic diarrhea of the new-born and of Q fever are unknown. It is not unlikely that milk may play a role in the spread of both these infections.

On the basis of present-day evidence the route of transmission of poliomyelitis seems to be personal association with either the oropharyngeal or the gastrointestinal discharges of infected individuals. Even though fecal contamination when present renders milk and water potential vectors of this virus, the evidence suggests that this mode of spread accounts for only occasional infection.

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Medical Society Guarantees Universal Medical Care

The Alameda County, California, Medical Society has guaranteed medical care to everyone at a price he can afford to pay. As a part of this program it has added a medical social service consultant to its staff.

The social service consultant will handle requests for medical care from both individuals and health and welfare agencies. Patients who cannot pay will be referred to the Highland-Alameda County Hospital. Those who can afford to pay part of the cost will be referred to the private physicians who have agreed to accept patients under the Medical Association's part-pay plan.

The medical social consultant is Muriel B. Hunter, formerly casework supervisor at the Highland Hospital. She will study the difficulties in securing medical care that individuals and agencies report, as a basis for improving the Association's part-pay plan.

The Dentist in the National Program of Cancer Control*

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THE critical position of the dentist in cancer control is clearly revealed by two prevailing conditions. First, many people have been educated to the fact that they should visit their dentist at regular intervals, and therefore the dentist has a better opportunity than the physician to examine the apparently well population. Second, a high percentage of persons with symptoms of oral cancer consult their dentist before their physician. This is easily explained by the fact that the early symptoms are seldom marked, and the patient often assumes, because of the nature and location of the lesion, that it results from trouble with the teeth. Histories of oral cancer patients who have applied to the Memorial Hospital in New York show that 60 per cent of those with cancer of the gums consulted their dentists first. It should also be mentioned that the physician may have no occasion to examine the mouth, and unless the patient complains of oral symptoms, an early lesion may go unseen. In order to control cancer, we must search it out, rather than wait for symptoms to lead the patient to seek treatment.

The National Cancer Institute is conducting a survey that will soon give an accurate measure of the cancer problem within the dentist's domain. This is a study of the incidence of all known cancer in ten metropolitan areas, well distributed geographically and representative of various living and working conditions in the United States. A survey of the same areas ten years ago provided information for comparison; so the results are expected to show whether cancer of those areas is increasing or decreasing, whether patients are consulting physicians at an earlier stage of the disease, and whether certain control measures have been effective. During the past summer, New Orleans, Denver, Atlanta, San Francisco, Chicago, and Pittsburgh were surveyed; and the remaining four areas—Detroit, Dallas and Fort Worth, Philadelphia, and Birmingham—are to be completed by the summer of 1949.

Every physician and hospital in the areas studied has received a questionnaire asking for information on each cancer patient observed or treated during a given year. Visits are made to those who fail to respond, and in this way, a high percentage of returns has been obtained. In the 1938 survey, every hospital and all but about 2 per cent of the physicians were represented in the analysis. Comparable success has been attained in the areas recently covered. When the results are analyzed, a detailed picture of the incidence of cancer in representative cities of the United States will be available, and a more accurate description of the cancer problem within the field of the dentist will be presented than ever before.

* Presented before the Dental Health Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

Hospital records indicate that the dentist often fails to recognize cancer in the early stages. About 3 out of 5 cases are missed. Under these circumstances, a considerable amount of time is usually spent in giving some form of dental treatment, which often reassures the patient that his condition is not serious. The result in many of these cases can easily be imagined—in a disease in which delay in beginning proper treatment may mean the difference between cure and death.

The National Cancer Institute, aware that dentists trained to cancer alertness could save thousands of lives a year, has initiated a broad program for assistance in the teaching of dentists and dental students to recognize the disease in its early stages. The first federal grants for this purpose were approved in 1947. Since that time, 34 dental schools approved by the Council on Dental Education of the American Dental Association have been circularized, and all but 5 have applied. Each grant provides up to $5,000 annually for cancer teaching, upon approval of a plan submitted by the school to the National Cancer Institute.

We thought it inadvisable to specify the type of improvement the school should make. Instead, the faculty is asked to review the school's present teaching methods. If a properly integrated course in cancer is not already provided, it is suggested that within the senior year, consideration be given to a curriculum in which the pathology, physiology, and biology of cancer are correlated with a weekly clinic, and that the cancer teaching program be integrated whenever possible with that of the medical school. It is further recommended that the faculty undertake to stimulate cancer research, since research programs have been shown to improve teaching and to stimulate student interest.

You may be interested in hearing how some of the dental schools are using this $5,000 grant for cancer education. A recent example is the grant to the College of Physicians and Surgeons, School of Dentistry, at San Francisco, Calif. The purpose of this project is to collect material relative to malignant tumors of the oral cavity, lips, and maxillae, in order to augment the teaching program. Among other materials collected are histories, intra-oral models, and microscopic specimens with photomicrographs and color transparencies of the lesions. This material will be prepared and organized for demonstration.

At the University of Illinois, in Chicago, the funds will be used to expand the present teaching program in diagnosis, control, and treatment of oral cancer, to coördinate activities of the various medical and dental departments, and to initiate research.

Similar programs have been planned or established in the other dental schools that have received grants. Although the sum is modest, these institutions have been able to supplement their teaching programs in various ways, and I am confident that this will provide cancer education which will strengthen future programs of cancer control.

The National Cancer Institute does not believe that training programs should be confined to potential dentists. On the contrary, it has also been a policy to extend informational services to practising dentists in order to keep them alerted to new developments in oral cancer. Many of you are aware that Service dental consultants are now assigned to every regional office of the Public Health Service. May I urge you to call on them for assistance.

We feel that one of the primary responsibilities of a public health officer —federal, state, or local—is to help instruct the practising dentist in recognition of the disease. Many are already engaged in arranging and sponsoring cancer symposia at meetings of dental

associations. We try to help in this work by supplying materials for visual education. For example, we have prepared a series of transparencies on oral cancer, and have distributed sets to strategic points throughout the country. A more ambitious undertaking, in cooperation with the American Cancer Society, is a series of movies for general practitioners, showing how to diagnose and treat various forms of the disease. One of these films, still in the planning stage, is directed toward the early diagnosis of oral malignancy. This film is planned for release by the middle of 1949.

Now for a few specific suggestions to the dentist who would aid in cancer control: By virtue of his key position in the cancer problem, the dentist has a primary responsibility in the prevention, recognition, rehabilitation, and follow-up of cancer cases. In order to meet this responsibility, he must first develop a balanced index of cancer suspicion. In other words, an appreciation of the extent of the cancer problem that falls within his area is a requisite. An estimated 500,000 persons are under treatment for cancer at any given time in the United States. About 300,000 new cases are diagnosed each year. And with these we must consider the patients who have been treated and cured, an unknown number, and also those whose disease has not been discovered. Roughly 15 per cent of all cancers occur within the range of the dentists—that is, are visible in the region of the head and neck.

These figures do not reflect the prevalence of the so-called "precancerous" lesions, which include benign tumors, leukoplakia, chronic fissures, ulcers, and keratoses. In most cases, these do not develop into cancer, but may do so if allowed to persist. Now, in the dentist's first responsibility — prevention — attention to these lesions is of major importance. The objective in each case should be to correct the causal condition, often a prolonged mechanical irritation. It is important to remove all jagged edges of teeth or fillings; to advise heavy tobacco or snuff users of early changes in the mucous membrane; to perform necessary periodontal therapy; to correct orthodontic anomalies; and to teach correct oral hygiene. These are the main considerations in cancer prophylaxis.

The general dental practitioner, like the general medical practitioner, seldom has an acceptable knowledge of the treatment and clinical course of neoplastic processes. He should be well acquainted with certain signs and symptoms that lead to a suspicion of cancer. As a routine procedure, he should perform a complete examination of the buccal cavity of every patient. If any suspicious lesions are found, palpation with the finger will help to determine the invasive nature of the lesion, by indicating the amount of swelling or induration. The lip is the most prevalent site of oral cancer and should be given special attention.

Although examination of other tissues of the head and neck are outside the dentist's realm, definite malignant signs in those areas may be detected, such as the basal and squamous cell carcinomas of the face. In addition, many subcutaneous tumors and adenopathy are revealed by visible swelling and should be noted.

If there is any suspicion of cancer or incipient cancer, the dentist should refer the patient to a competent physician or surgeon as soon as possible. The progress of an oral cancer is sometimes rapid, and a relatively short delay may considerably reduce the chance of cure. The dentist must realize that his responsibilities do not end with the care of dental anomalies, and that every malignant tumor brought under proper treatment at a sufficiently early stage may mean the saving of a human life.

The dentist who suspects that a patient has cancer may be faced with the question of whether to attempt a diagnosis. The danger of making a diagnosis of cancer from clinical appearance alone should be emphasized. A certain and specific diagnosis, even in advanced cases, can only be made through microscopic tissue examination. Without microscopic confirmation, the use of surgery or radiation that is necessary to effect a cure is unwarranted. Neither the physician nor the dentist is justified in making more than a tentative diagnosis without a tissue examination by a specialist in histopathology. The pathologist's report has been termed the "legal" diagnosis of cancer.

Whether the dentist should consider taking a specimen for biopsy depends primarily upon two factors—an understanding between the dentist and the medical profession in the area, and the dentist's ability to rule out lesions that are unquestionably nonmalignant. The first of these considerations is a problem for the dentists and physicians to settle between themselves. There can be no question, however, that dentists in the smaller communities and rural areas, where physicians are scarce or unavailable, should assume this responsibility. Actually, it may be contended that the well trained dentist is better prepared than the physician to obtain a biopsy specimen from the mouth, because of his familiarity with that site and his special equipment.

As to the second factor, it should be pointed out that sometimes the decision whether a lesion looks enough like cancer to warrant biopsy should only be made in the light of considerable experience. We can say in general, however, that a biopsy should be performed on all suspicious bone cysts, alveolar granulomas, and ulcers or swellings of the gingiva. The dentist should see that a biopsy is done on any ulceration of the tonsils, tonsillar pillars, floor of the mouth, gingival buccal gutter, or hard palate that shows neoplastic characteristics. Generally speaking, the characteristics of oral cancer are ulceration, tumefaction, induration and chronicity. It would take too long to detail the procedure of obtaining the specimen; but I would like to make one point in that regard before leaving the subject: The specimen for biopsy should be obtained with as little trauma as possible, to minimize the danger of spreading the disease.

I mentioned the rôle of the dentist in the rehabilitation of cancer patients. After the patient has been treated by radiation or surgery, the dentist, physician, and plastic surgeon should coöperate in prosthesis. The cured patient's readjustment to himself and to society frequently depends in large measure upon the successful restoration of function and appearance.

The follow-up of treated patients is an important aspect of any cancer control program. For various reasons, patients who have consulted physicians about suspicious lesions often fail to return for further examination or treatment. In these cases the dentist who sees the patient can render valuable assistance in many ways. He can learn, for example, what the physician advised and persuade the patient to act. He can explain why a biopsy is necessary, why the physician is the best judge as to whether the radiation should be given or an operation performed, and why delay or unskillful treatment may prove disastrous. If he learns that the patient has discontinued treatment because of alarming reactions, he can calm him and persuade him to return to his physician or hospital. One of the most important functions of the dentist in follow-up is to ascertain that the patient he referred for diagnosis has followed his advice.

So far, I have discussed in a general way the responsibility of the dentist in cancer control and some additional con-

tributions he can make to the national control program. Naturally, the question arises: By what means is he to do all this? True, the government is lending support to the dental schools, in order to provide educational advantages to the student; but what of the practising dentist? I could mention first the federal grants-in-aid to state health agencies for general health work and for cancer control. Under the latter program $2,500,000 were allocated to the states for fiscal 1949. This amount is distributed at the discretion of the state health agency, and in some instances a portion is budgeted to the state dental officer. It is my personal feeling that the state should allocate a fair proportion of these funds for the extension of educational activities directed toward the dental profession.

Among workers in state health agencies, there is growing recognition of the need for integration of cancer control activities with other operations of the agency. The cancer control officer and his staff must coöperate closely with statisticians, epidemiologists, health educators, public health nurses, state laboratories, the tuberculosis and venereal disease control divisions, the industrial hygiene department, and the dental office. Cancer, like syphilis, is a protean disease, and therefore should interest all departments on whose disciplines it impinges. There can be no doubt that the concentration of every resource upon the cancer problem is producing measurable results.

I have tried to define, in general terms, the rôle of the dentist in the national program of cancer control, and to mention some of the available resources for control activities. The National Cancer Institute solicits your assistance in this program. If the 78,000 practising dentists in the United States are informed of the problem, and prepared to meet it, they can certainly make a forceful attack on one of the gravest conditions facing the world today. It has been estimated that dentists see a fourth of the population every year—35 million patients. If those dentists remember the formula "prevention, early discovery, and adequate treatment," and see that this formula is applied, they will be amazed at the number of cancer cases they can detect, and the number of lives they can save.

The Industrial Nurse as a Health Counselor in Industry*

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UNTIL about two decades ago industrial nursing developed rather slowly and uncertainly. Its place in the health scene was undetermined; its principles and practices were mainly on an individual basis. Industrial nurses, isolated by the very nature of their work, were hewing out their own trails. In recent years, however, this field has gained rapid momentum. It is today a recognized agency in the program of community health and safety. It is firmly established within industry, no longer an expression of managerial philanthropy, but an integrated factor essential in production and in good human relations. Its place as a distinct branch of nursing is clearly cut.

Out of our experiences over the half century, since Ada Stewart was engaged by the Vermont Marble Company to attend its injured men, we have evolved the principles that must underlie our work. We have banded together into a national body in order to promulgate these principles. Standards for preparation for industrial nursing are emerging. Last May, nurse educators from eleven universities and colleges met with our national association here in Boston to discuss the basic curriculum. Our programs have steadily expanded as the advances of medical science, the science of human relations, and the activities of the public health field have influenced the general concepts of health work. Needless to say, in this growth health counseling has become a major factor in our objectives.

Our work began with the iodine swab in the hands of a nurse. As production methods accelerated and accidents increased, more nurses entered industry. Their tasks were mainly first aid and other ameliorative work. Costs were charged off to kindness or to dire necessity. The industrial physician was, of course, in the scene, first largely on a part-time basis, but lately more and more coming in as a full-time medical director. I shall not attempt to discuss industrial medicine here but in all that is said the presence of the physician is implied. The industrial nurse recognizes that she is a partner in the health team in which only the physician is qualified to diagnose and outline treatment.

The first major change in our work came in the passage of Workmens' Compensation Laws. This legislation, a move in the conservation of man power, reflected a growing social awareness of the value of health and freedom from needless handicap and maiming. With the passage of these laws, industrial health programs moved out of the philanthropic era into one in which they became a reckoned part of production costs. This action moved the medical department from its rather precarious place on the edge of the plant right into

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the center of its being, and therefore closer to its man power.

It soon became evident that it was cheaper and better to prevent accidents than to let them happen, and as a result the safety engineer entered the scene. It became evident, too, that illness and disease, both occupational and non-occupational, were more costly in absenteeism and lowered production than were accidents. The medical programs expanded, and the industrial hygienist joined the plant group engaged in protecting the worker. In the course of events another fact became evident. The worker, away from the plant sixteen hours a day, was inseparable from the health and social conditions of his family and community. Industrial health programs and those of the community needed to be more closely related—and today we find an increasing coöperation between the two realms.

World War II marked the second major turn in industrial health programs. The economic and morale value of health work had been amply demonstrated. It was recognized as essential in conserving man power. Industry had learned during the war how to use the handicapped worker effectively. A new philosophy emerged—a recognition of the fact that few persons are physically perfect and that the skilled placement of workers according to their abilities tends to make their disabilities of lesser importance.

When health examinations were first introduced their purpose was to protect industry by excluding workers with defects. This policy cost management the use of valuable workers and it embittered labor.

We are coming now to realize that the best policy is not exclusion but proper placement. Clark Bridges in his excellent text, "Job Placement of the Physically Handicapped," says: "Every worker has some form of disability . . . but nearly every one has more ability than disability. Proper placement brings out the ability and the disability disappears." This advance in industry's employment policies has firmly established the role of health counselor for the nurse. The personnel director must have the close coöperation of the medical department to make his work effective. In the evolution of the industrial health program, the man has emerged from behind his torn hand; it is the man *and* his injury that concern us. No longer is our approach to him a philanthropic gesture but rather one of establishing sound human relations. We recognize that it is not the machine that is most important but the man behind the machine. His good will, his satisfaction with his job, his health and safety, are all prime factors in production.

As this trend increases, the responsibilities and opportunities of the industrial nurse increase. Modern mass production tends to rob a man of his individuality; the medical department helps restore it. Here he is not a number but a person, "*Mister*" or "*Joe*"; the interest is not in his productivity but in *him*. The nurse's job becomes more challenging. She uses her nursing skills; maintains smooth relationships with all departments; works in close harmony with safety engineers, industrial hygienist, personnel director; keeps adequate records for the insurance carriers; and also carries on the multitudinous tasks that come under the term of health counseling.

Health counseling in industry has many facets. It may relate to the use of chemicals, to safety devices, or to plant sanitation. It may relate to the man himself in his dietary and other similar needs. It often extends beyond factory walls to the members of his family who are reached mainly through health pamphlets carried home in his pocket. In other words, health counseling in industry is coming to mean atten-

tion to the worker's environment as well as to the man. Health education in industry, as health education in the community, requires the coöperation of the individual. The public health nurse entering the home may give nursing care or there may be no need for it; but in all instances she teaches the lessons of personal hygiene and home sanitation. She tries to remove the obstacles of ignorance, social and other problems, and physical conditions that bar the way to family coöperation in the community health program.

The industrial nurse follows these same principles. She uses the occasion of the employee's visit to the clinic to give individualized instructions relating to his particular situation. But she may also use the occasion to enlist his cooperation in a campaign against tuberculosis, veneral disease, or alcoholism. Industry will make notable contributions to our knowledge of rheumatism, arthritis, cancer and similar diseases, as its research programs gather impetus, and the nurse in her contact with the individual can be a pivotal agent in this area. As she teaches, she learns, an inevitable concomitant. Her contact with the employee is often in a health, rather than a sickness situation, as for example, care for his cut finger. The slight symptom seemingly unimportant, revealed in casual conversation or in response to skilled questioning, may have a twofold significance. It may lead to medical supervision over a serious condition but it may also furnish the researcher with valuable clues. An employee may complain of frequent headache, and examination reveals eyestrain. It is the nurse's business to learn if the trouble lies with the lighting at his post or with his disregard of the protective devices that have been provided. It is her task to support and reinforce the safety instructions given by the foreman and safety engineer.

Her relationships in the plant give her an unusual opportunity for teaching personal hygiene. She represents management, yet she is also a fellow worker. She is on both teams and she is trusted as a friend. An employee comes in for attention to a sliver. He remains to ask advice on a health problem in his home or to be instructed in some indicated lessons of personal hygiene. Visits to his home, either at his request or because he needs care, yield even greater opportunities for this instruction.

Organized health classes, well implemented with films, charts, pamphlets, are another potent source of health education. When well planned they are popular and highly productive and they are increasingly finding favor both with management and labor. Regular contributions to the plant publication by the medical department are also a common and useful device in health education. Adapted to seasonal conditions, such as a polio epidemic, they reach not only the worker but his family.

The nurse as health counselor has also an important part to play in accident prevention. Accidents, in the main, are not due to employees' physical defects. Rather they tend to occur with those who have the *habit* of accident. So well recognized is this fact that in some industries it is the policy to transfer to other jobs the worker who has had two identical, lost-time accidents. Counseling here is of paramount importance, as the nurse in conference with the employee, tries to determine the cause of his accidents and prevent their recurrence. Fatigue, home problems, maladjustments of various types all have an influence here.

The nurse's presence on the safety committee enlarges her counseling service, beyond concern with the individual, to the total plant. More and more, she is being brought into coöperation with the total plans of worker protection,

organized by the safety engineer, the industrial hygienist, and the personnel director. And more and more we are integrating the industrial health programs with those of the community. A person discovered with a medical defect during preplacement or routine examination is counseled confidentially and referred either to his personal physician or to community resources.

The nurse is conscientious about preserving the man's right to privacy, while at the same time safeguarding the health of other workers. As the community reaches into in-plant programs such as mass surveys, the counseling ability of the nurse is demonstrated in the degree of coöperation obtained from the workers.

The work of the nurse as a health counselor in industry is now unevenly developed because it is our newest phase of service. Some nurses have been unable to incorporate any of the specific activities I have outlined as health counseling. Others have been able to develop even more. These inequalities will level off as management more and more realizes the values of health counseling. The history of the development of industrial nursing gives a solid foundation for our belief that health counseling has a permanent place in the industrial health program.

New York Incorporates Its Annual Health Conference

Herman E. Hilleboe, M.D., M.P.H., New York State Commissioner of Health, announced on April 15 that New York State's Conference of Health Officers and Public Health Nurses was incorporated as the Annual Health Conference, Inc.

According to Dr. William A. Brumfield, Jr., First Deputy Health Commissioner and President of the Conference Board of Directors, the corporation was formed because of the growing importance of the conference to workers in the public health field. The conference will hold its 1949 meeting at Lake Placid, June 20–23, marking the 45th session of the conference, which attracts an attendance of more than 1,500.

Besides Dr. Brumfield, the officers include:

Vice-President — Dr. Robert H. Broad, Binghamton

Secretary—Dr. Granville W. Larimore, Albany

Treasurer—Clifford C. Shoro, Altamont

Directors—Mary E. Parker, Albany; Mary H. Parks, Albany; Elizabeth Parkhurst, New Lebanon Center; Marguerite J. Queneau, Albany; Dr. W. E. Ayling, Syracuse; Robert W. Osborn, New York City; Dr. David B. Ast, Albany; Earl Devendorf, Schenectady; Walter D. Tiedeman, Elsmere; Dr. John K. Miller, Albany.

School Health Services*

A Report from the American Academy of Pediatrics Study of Child Health Services

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HEALTH services for the child of school age have tended to center at the school, first because children are concentrated there and thus can be easily reached, and second because the school situation offers an excellent opportunity for health education. In general terms, the objectives of school health services may be defined as the protection of the health of the child of school age, the development of a health consciousness for the child and his parent, the early detection of impaired health, and some sort of follow-up system to assure that defects found at the time of health examinations receive prompt attention.

In order to obtain information in this important field, a study of certain aspects of school health services has been included in the comprehensive, nation-wide study of child health services now completed by the American Academy of Pediatrics, with the cooperation of the Federal Security Agency's Public Health Service and Children's Bureau. At national, state, and local levels, facts have been gathered with a definite purpose in mind: to provide the tools with which to improve child health, not only for the country as a whole but for local communities. Therefore, certain of the data have been tabulated for each of the 3,000 counties. The findings of this study are now being reported in summary for the country as a whole[1] and in more detail for the individual states.

It should be clearly understood that the study has not attempted to gather data on all aspects of a complete school health program. Services may cover a wide range. Health education, provision for sanitary school environment, control of communicable disease are among the aspects not included in the study.

For the purposes of this paper, the following items have been selected for consideration: (1) the lack of school health services for large areas of the country and for a large proportion of the child population, (2) the division of responsibility between health and education agencies, (3) the frequency of medical examinations and the types of special tests included, and (4) the personnel active in school health programs.

LACK OF SCHOOL HEALTH SERVICES IN COUNTIES AND STATES

We have distinguished between "school medical services" and "school nursing services" and have included under the former only those in which a physician examines children at the

* Presented before the American School Health Association at the Seventy-sixth Annual Meeting of the American Public Health Association in Boston, Mass., November 8, 1948.

school itself for purposes other than for athletic teams.

It is recognized that in some places, instead of service being given at the school, children are referred to their own physicians or a physician who is paid by the agency responsible for the school health service. Both these methods—service provided at the school and referral to private physicians—have their proponents and advantages. We did not undertake to evaluate their comparative merits, nor did we consider it practical to include in the study of school health services the services given outside of the school.

In planning for the collection of material on school health, the number of children examined was not considered a reliable index of the amount of service. In many school health programs no individual records are kept, so that a proper count of examinations cannot be made. In this type of program, children are lined up for an "examination" which is, at best, a mere "inspection." To add a thousand such examinations from one program to 25 in another, consisting of careful and complete examinations on children selected by teacher or nurse for special care, seemed to confuse rather than clarify the issue. In some systems, nurses' or teachers' examinations are lumped in with physicians' examinations. It seemed wiser, therefore, not to attempt a count of something which is at present as heterogeneous as the school health examination.

The amount of school health service is presented in terms of the presence or absence of the service, county by county. Complete coverage has not been possible. Administration of the service is often not on a county basis but on a school district, or even individual school basis. The proportion of the child population of a county thus covered is unknown. The smallest population base with which we could work on a national basis was the county.

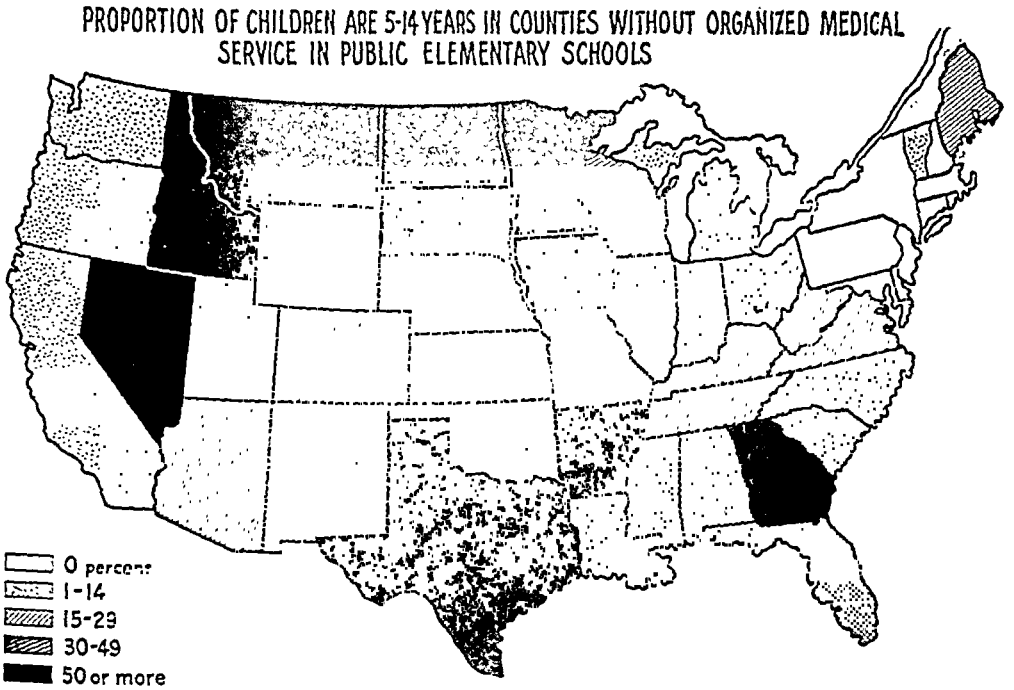
A county is said to be without school health service if there is not at least one public elementary school in which children are given a medical examination by a physician. For example, if a county should have 100 elementary schools and only 1 of these should have provision for health examinations, this county would be listed as having school health services. Thus the positive statement of how many counties *have* school health services is a gross over-statement. The negative statement of how many counties *do not have* school health services has more meaning.

In the United States as a whole, one-half of the counties (1,545) had no organized system of medical examinations, as defined above, in their public elementary schools in 1946. One-third of the counties had neither medical nor nursing service.

The question naturally arises as to whether the counties which lack service are mostly rural and sparsely populated areas in which there are few children and few schools. It is a fact that metropolitan areas are better covered in this respect than isolated rural areas. Of the counties, which for the purposes of this study we have classified as greater metropolitan,* there were practically none which were without some organized school medical service; of the counties which we have classified as isolated rural, 68 per cent lacked such service. But if we look at the situation from the point of view of child population, we find nearly 5,000,000 children, 5 to 15 years of age, 22 per cent of all children of this age group, in the counties without this service.

On a state by state basis there is a

* For definition of county classification as used in this study see: Hubbard, John P., Pennell, Maryland Y., and Britten, Rollo H. Health Services for the Rural Child. *J.A.M.A.* 137:337–343 (May 22), 1948.



wide range in regard to the proportion of child population in counties having no organized medical service in public elementary schools. In 8 states there were no counties which did not have at least some such service; 10 states had more than half of their counties uncovered.

ADMINISTRATION OF SCHOOL HEALTH SERVICES

The administration of school health services is a matter of controversy between health and education authorities. There is agreement on some aspects, as for example, that health education is primarily a job for education authorities and that control of communicable diseases should rest with the health agency. In order to throw some light on this issue, we included information on the administrative pattern of agencies in operation at the local level. The major difficulty in such an undertaking lies in the definition of what constitutes an agency. For education, this is usually the school authority serving a school district. The public elementary schools

TABLE 1

Counties Without Organized Medical Service in Public Elementary Schools, and Children Age 5–14 Years in Those Counties (1946)

County Group	Total Counties	Counties Without Service		Total Children	Children in Counties Without Service	
		Number	Per cent		Number	Per cent
Greater metropolitan	63	2	3	5,036,774	31,312	1
Lesser metropolitan	177	23	13	5,291,917	335,360	6
Adjacent	668	306	46	3,634,300	1,167,250	32
Isolated semi-rural	1,116	494	44	5,896,405	2,101,931	36
Isolated rural	1,052	720	68	2,137,017	1,295,539	61
Total	3,076	1,545	50	21,996,413	4,931,392	22

TABLE 2

Listing of States According to the Proportion of Child Population (5–14 Years) in Counties Having No Organized Medical Service in Public Elementary Schools

0 Per cent	1–14 Per cent	15–29 Per cent	30–49 Per cent	50 or More Per cent
Connecticut	California	Alabama	Arizona	Arkansas
Delaware	Louisiana	Florida	Colorado	Georgia
Massachusetts	Maryland-D. C.	Illinois	Kansas	Idaho
New Hampshire	Michigan	Indiana	Kentucky	Iowa
New Jersey	North Carolina	Mississippi	Maine	Minnesota
New York	Ohio	Nebraska	Missouri	Montana
Pennsylvania	Oregon	New Mexico	Tennessee	Nevada
Rhode Island	Utah	Oklahoma	Virginia	North Dakota
	Vermont	South Carolina	West Virginia	South Dakota
	Washington		Wisconsin	Texas
	Wyoming			

in a city are generally served by a single agency, but there may be many agencies within a county, covering individual school districts. For health, the picture is usually the reverse, a health jurisdiction frequently being made up of several counties. There is, therefore, some tendency for the number of education agencies to be multiplied and the number of health agencies to be reduced in relation to the same areas. Recognizing the limitations of the use of "agency," it is seen in Table 3 that there is a fairly even division between official education and official health agencies. About 11 per cent of the agencies have been classed as under joint administration by official education and health agencies together.

This pattern is not, of course, the same everywhere. There was a much

TABLE 3

Agencies Giving School Medical Service

	Number	Per cent
Official education	1,271	45
Official health	1,173	41
Joint official education and health	323	11
Other	84	3
Total	2,851	100

TABLE 4

Per cent of Agencies by Sponsorship in Each County Group

	Official Education	Official Health	Joint Official Education and Health	Other Agencies
Greater metropolitan	69%	9%	17%	5%
Lesser metropolitan	63	23	11	3
Adjacent	50	34	12	4
Isolated semi-rural	28	61	9	2
Isolated rural	16	71	10	3

TABLE 5

Frequency and Types of Examinations by Different Sponsoring Agencies

	All Agencies	Official Education	Official Health	Joint Official Education and Health	Other
Medical examinations:					
All pupils once a year	36%	64%	10%	22%	40%
Certain grades once a year	41	26	53	56	40
Only referrals by teacher or nurse	23	10	37	22	20
	100	100	100	100	100
Special examinations done routinely *:					
Vision tests	91%	96%	86%	91%	91%
Audiometer	54	76	28	62	49
Tests for tuberculosis	26	24	28	22	44

* Annual testing of all pupils, certain grades, or new pupils

greater tendency for education authorities to provide the service in metropolitan counties and for health agencies to be responsible in isolated counties.

FREQUENCY AND TYPES OF EXAMINATIONS

Another controversial subject in school health is the frequency with which examinations should be given. We undertook to determine the present practice, that is, whether the policy of the agency was to examine (1) all pupils once a year, (2) certain grades once a year, or (3) only on referrals by teacher or nurse. Though the practice was divided fairly evenly among these three patterns, emphasis appears to be given by education agencies to examining all children yearly, while the health agencies appear to be more selective in examinations.

Attention was directed specifically to the extent to which children are examined for vision, hearing, and tuberculosis. Practically all (91 per cent) of the agencies reported routine testing of vision; only about a half (54 per cent) routine and audiometer testing of hearing; and about a quarter (26 per cent) testing for tuberculosis either by x-ray or tuberculin.* It is a matter of considerable interest that official education agencies demonstrated more concern over testing for vision and hearing than the official health agencies. This is particularly true in respect to the audiometer testing; 76 per cent of the official education agencies gave routine audiometer tests in comparison with 28 per cent of the official health agencies. In respect to testing for tuberculosis, the score was low for both health and education agencies, with the former having a slight edge—28 per cent in comparison with 24 for the education agencies. There was a rather even distribution between those agencies which used x-ray examination and those which tested with tuberculin only.

* Annual testing of all pupils, certain grades, or new pupils.

PERSONNEL ACTIVE IN SCHOOL HEALTH PROGRAMS

Much of the school medical work is done by part-time physicians, either health officers (who may be full-time officers but devote only a part of that time to school work), or practising physicians who give varying proportions of their time to the schools. In adding together all the physicians giving school medical service, equal weight was given to a man devoting full time to the job and one giving one hour per week. Nor was it possible to obtain a completely unduplicated count. If a health officer or practising physician served more than one agency, he is undoubtedly counted more than once. No way out of this dilemma was found.

Of the 8,000 physicians serving in the schools about 20 per cent were health officers. The per cent of health officers working in the schools is comparatively small in metropolitan counties increasing as one goes out from these centers to the isolated rural counties. In the greater metropolitan counties 3 per cent of the physicians were health officers in comparison with 59 per cent in isolated rural counties.

About 38 per cent of the total physicians were employed by the official education agency in comparison with 31 per cent by the official health agency. The remaining one-third were employed by the official health and education agencies jointly.

Of the large majority of those physicians who were not health officers (6,390), 94 per cent were general practitioners and 4 per cent pediatricians. Thus the pediatrician plays a relatively small role in school health programs.

About 11,700 nurses gave some time to the schools, usually as a part of a general public health program. Some-

what over one-third (38 per cent) of these nurses were employed full time to work in the schools. About 40 per cent were employed by the official health agency; only slightly less being employed by the official education agency; and most of the rest being employed by official health and education agencies jointly. Again we find the southeastern region at variance with the practice throughout the country as a whole. In this region the large majority (85 per cent) of the school nurses are employed by the official health agency.

CONCLUSION

In closing, it should be pointed out that the information presented here is only in the nature of a general summary of the data collected during the course of this study in relation to school health services. More complete data will be found in the national report already referred to and in the reports of the study being published separately by the individual states.

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IS AREA ERADICATION OF TUBERCULOSIS POSSIBLE?

IN a paper published in this JOURNAL in 1937, Wade Hampton Frost[1] presented a thoughtful appraisal of the question "How Much Control of Tuberculosis?" After marshalling the available evidence, he came to the conclusion that in this country we had already reached a stage at which the biological balance was against the survival of the tubercle bacillus and that eventually the mortality from this disease would be reduced to the vanishing point.

A contrary conclusion was drawn from British experience by Major Greenwood. At the end of his chapter on tuberculosis in his book *Epidemics and Crowd Diseases,* also published in 1937, he asserted that: "Without doubt it is idle to speak of the conquest of tuberculosis; tuberculosis has not been and so far as one can see never will be conquered." This opinion recently received an endorsement from Medlar[2] who was impressed with the frequency of his finding of tuberculous pulmonary lesions unrecognized during life in persons in the older age groups coming to autopsy in New York City.

The question of the validity of Frost's thesis is of great practical as well as theoretical importance. His reasoning was briefly this: There were many and sound reasons for doubting that the rapid and general decline in tuberculosis in the preceding half century had been due *principally* to the measures which had been taken for the specific purpose of preventing infection. Without question the complex group of factors included under the terms "advancing civilization and better living conditions" had played an important role. There was reason to believe, however, that the decline was due *in some part* to the direct efforts made to control the disease.

The direct attack has proved to be a more formidable undertaking than was at first realized, but in Frost's words: "If the effective control of tuberculosis required *complete* isolation of *all* open cases throughout the whole of their open stage, the present (i.e., 1937) status could not be considered encouraging, for a large proportion of such cases are discovered only after they have reached a fairly advanced stage, and the isolation even of cases known to the health authorities is probably less than 50 per cent complete. However, for the eventual eradication of tuberculosis it is not necessary that transmission be *immediately* and

completely prevented. It is necessary only that the rate of transmission be held permanently below the level at which a given number of infection-spreading (i.e., 'open') cases succeed in establishing an equivalent number (of 'open' cases) to carry on the succession. If, in the successive periods of time, the number of infectious hosts is continuously reduced, the end result of this diminishing ratio, if continued long enough, must be extermination of the tubercle bacillus."

He placed a single qualification upon his conclusion to the effect that "As to the maintenance of this balance, favorable to us, unfavorable to the tubercle bacillus, there are, of course, elements of uncertainty, among them uncertainty as to the stability of our civilization."

Only twelve years have passed—too short a period upon which to base inferences in regard to long-time trends. Yet it has been a critical period in which the very existence of civilization has been threatened. The world has undergone one of the greatest military, social, and economic upheavals in history. It is, therefore, pertinent to review the experience of this decade and inquire whether the Frost thesis is still tenable.

Despite their limitations, mortality rates provide the best available index of the biological balance in different countries over long periods of time. During the war years, mortality from tuberculosis in most of the western Europe nations involved in the conflict increased, while those countries that escaped the rigors of war were little affected. Thus, in western Germany there was a marked rise succeeded by a decline in the first two post-war years, but the rate is still higher than in 1938. In Belgium and the Netherlands, on the other hand, the rate rose sharply during the war, but by 1946 was already down to or below the 1938 level. England and France experienced moderate increases in mortality early in the war, but their rates were well below the pre-war level in 1946. In Denmark, Sweden, and Switzerland, mortality continued downward during the war. In the United States as a whole, mortality has continued to decline at approximately the same rate as that of the past quarter century. In some states and cities it has declined more rapidly than others. In only a few localities and population groups has the downward trend become definitely retarded.

It appears, therefore, that the disturbances due to the war, which were profound in some of the countries of Western Europe, have been insufficient to affect more than a temporary setback in a process of declining death rates. This lends support to the view that in certain areas of the world, where civilization is relatively advanced, the biological balance is still against survival of the tubercle bacillus.

To what extent this is due to indirect socio-economic causes or directly to control measures is a question as difficult to answer now as it was in 1937. In the United States, progress has been made in the development, and more particularly in the application, of more effective measures of control despite the war—in some respects, because of it—notably in the screening of millions of recruits by the military services, and bringing under medical care those found to have tuberculosis. Methods of treatment, of immunization, and of case finding have been improved. It is appropriate to inquire in what manner these advances may have affected the biological balance.

In the field of specific therapy the most important contribution was, of course, the discovery of streptomycin. This antibiotic is now receiving extensive clinical trial. Its values and limitations are becoming apparent. While its suppressive action has been demonstrated in tuberculous meningitis and miliary tuberculosis,

it has been somewhat disappointing in treatment of the pulmonary form of the disease, the form which is biologically essential to the dissemination of the tubercle bacillus. This experience does give hope, however, that eventually an antibiotic may be discovered and be made practicably available which will suppress growth of the microörganism in the tissues and rapidly terminate the infectious state in pulmonary tuberculosis. With such an agent, the seedbed of the disease could be more rapidly reduced.

The search for a practical and effective method of artificial immunization has progressed. The technique of production, standardization, and administration of BCG vaccine has been improved. Vaccination with this agent has had widespread trial in Europe and South America. Its safety under properly controlled conditions has been established. Critical trials (such as those reported by Holm; Ferguson; Rosenthal, Leslie, Loewinsohn; Aronson and Palmer) support the judgment that this procedure affords a considerable degree of protection against post-primary tuberculous lesions for at least a few years after vaccination. Its long-range effect in reducing the incidence of pulmonary tuberculosis has yet to be determined. For this reason, in the United States, the procedure is still under investigation, and the vaccine has not been made commercially available.

Thus, so far as public health practice in this country is concerned, the past ten years have brought forth no really new principle of prevention, although prospects for the future are bright. The main objective, as Frost stated it, is still avoidance of exposure, and the strategy is still that of a frontal assault on discoverable sources of infection.

This leads us to inquire what progress has been made in "case finding" and isolation. The tools used in diagnosis have undoubtedly been sharpened. Interpretation of the tuberculin test has been rendered more accurate by quantitative studies. Recovery and identification of the tubercle bacillus is accomplished with a greater degree of refinement by concentration, culture, or animal inoculation of gastric contents as well as sputum. The errors inherent in the reading of x-ray films have been explored and taken into account. Non-tuberculous causes of pulmonary calcification have been shown to be more frequent than was formerly supposed, at least in certain parts of this country.

Technical advances in radiography have made it practicably possible to screen large groups of the population for evidence of pulmonary pathology. Well directed "mass surveys" are undoubtedly of potential value in the early discovery of "open" cases of pulmonary tuberculosis. Their actual value depends upon the thoroughness of the follow-up and the extent to which persons with suspicious lesions are subjected to careful medical examination and observation. Further, their biological effectiveness will be determined by the adequacy of local provision for prompt medical care and the isolation of "open" cases which are discovered. Actually, this varies widely in different parts of the United States, and leaves much to be desired in many areas.

The need for sanatorium beds has by no means been satisfied everywhere. The effort to maintain hospital isolation of patients over the long periods of time required for treatment and to reduce the proportion who are discharged "against advice" is successful to a varying degree in different hospitals, but can never be completely so because of the very nature of human beings. Probably more than half of the patients who are discharged are bringing up tubercle bacilli, even though in most instances intermittently and in small numbers.

While there are still manifest deficiencies in the preventive program as it relates

to case finding and isolation, it is better than it was a decade ago. There are many and sound reasons for believing that the level of effectiveness attained in many areas is sufficient to constitute an increasingly important factor in progressively reducing the frequency of transmission from infected to non-infected individuals.

Granting continuation or strengthening of control efforts in addition to favorable socio-economic developments in a world at peace, it would seem not unreasonable to expect that the balance, favorable to us, unfavorable to the tubercle bacillus, will be maintained and that the decline in mortality from tuberculosis will be sustained, even to the point of disappearance from some areas. There is nothing in the record up to date that is inconsistent with Frost's thesis.

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THE ACADEMY OF PEDIATRICS STUDY

ONE of the most outstanding public health pinnacles of 1949 is the report of the Academy of Pediatrics on Child Health Services and Pediatrics Education.[1] At a cost of one million dollars, the Academy (with the aid of the U. S. Children's Bureau, the U. S. Public Health Service, and private foundations) has completed an exhaustive and revealing survey of the actual status of health care for children in the United States. We shall present an expert review of the findings in a later issue of the JOURNAL; but it is none too soon to congratulate the Academy on a remarkable piece of public service.

Dr. Thomas Parran, Dean of the School of Public Health at Pittsburgh, pointed out at a meeting of the Academy on April 2 how significant this service has been and how naturally it grows out of the general philosophy which has governed the activities of the Academy in the past. He told the members of the Academy "because you have kept abreast of the profession and have not been among those dragged captive and shrieking behind the chariot of social progress, you are in a far better position to shape your own future than those who have been less foresighted."

The Academy, in projecting its study desired to learn whether there were a large number of children in the United States who were not receiving preventive and curative care compatible with present standards of good pediatric practice. If such were the case it sought to estimate whether the lack of adequate care was due to one or more of the following factors: "(1) parents are unable to pay for good service; (2) there is an unwillingness to use, or lack of knowledge of, available facilities; (3) services are not available where many children live; and (4) there are not enough physicians well trained in the medical care and health supervision of children, especially in rural areas."

The study demonstrates beyond question that all the factors mentioned are actually operating to the grave detriment of the health of our children. It is clear that mothers must be conscious of the need for good health care and that many are not now conscious of that need. The remedy is health education. It is clear that the care must be available where the children are; and this is not the case in our rural areas. The remedy is planning for hospitals and health centers and public financial support for their construction and maintenance. It is clear that funds must be available to pay for care; and such funds are not available for moderate

and low income groups anywhere in the United States. The remedy can only be found in prepayment of the costs of medical care on a voluntary or universal basis, or tax supported services. or a combination of the two programs. It is clear that popular interest and physical facilities and funds cannot operate successfully while there are not enough well trained physicians (not only pediatricians but general practitioners), especially in rural areas. It is to this latter problem that the Academy logically directs its major emphasis: and half the report deals with the problems of undergraduate and graduate training of physicians in this field.

The responsibility for implementing practical measures for improvement has been assigned by the Academy to a continuing Committee for the Improvement of Child Health. This report has made a case which calls for action. As Dr. Parran said, on an earlier occasion, "The Academy of Pediatrics took upon itself a heavy responsibility in making the survey; for that step inevitably obligated them to take a second and far more difficult step; viz., to use this knowledge to develop a national program of child health services."

But this obligation does not rest only on the Academy of Pediatrics. It rests on every public health worker of the country. It rests on every citizen in every state and every town. "In a nation untouched by bombs, unravaged by famine, not the prey of war-borne epidemics, three babies died for every soldier killed in combat during World War II." To quote once more from Dr. Parran, "There is a time to stand and there is a time to strike. There is a time to feel out the situation and a time to move forward. This is your hour."

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THE A.S.H.A. GOES TO WAR

A LITTLE less than a year ago, Oscar R. Ewing, Federal Security Administrator and Chairman of the U. S. Interdepartmental Venereal Disease Control Committee, wrote to President P. R. Mather of the American Social Hygiene Association to request that the Association assume the following responsibilities:

"To act as advisor to Central Armed Forces Disciplinary Control Board of the National Defense Establishment in matters pertaining to civilian community education and the repression of prostitution.

"To continue and expand services to supply confidential data regarding prostitution conditions in the environs of military establishments.

"To give consideration to performing the functions of the Federal Social Protection Division, which no longer exists.

"To make available to the Armed Forces, on request, educational material and advisory services.

"To bring citizen support to good law enforcement, social treatment and individual health education through the home, the church, and the school."

The response of the A.S.H.A. was prompt and effective. Funds for the enlarged program have been obtained from the United Service Organizations. During the summer of 1948, the Association recruited, trained, and assigned to field positions a highly competent group of workers. A Washington Liaison Office was opened on September 1. By October 1, field offices were established in Chicago. Atlanta, San Antonio, and San Francisco, and the national headquarters in New York was expanded to house field representatives for the New England and Central Atlantic States. Additional scientific field assistants were assigned for

confidential studies of prostitution and related conditions. After the project had been in operation for only three months, improvements in local conditions already had been noted. In one Middle Atlantic port city of great importance to the Navy, local authorities have been stimulated to close up numerous vicious resorts frequented by servicemen. In a New England city several notorious taverns, long places of encounter of Navy men with prostitutes, have been placed "off limits" for members of the Armed Forces. A Texas city near large Army and Air Force establishments has closed most, if not all, brothels frequented by servicemen. Work is progressing in many other communities which are "leave areas" or visited by large numbers of soldiers, sailors, and airmen for any reason.

In response to a request from the Interdepartmental Committee, a team of scientific field workers spent a month in a survey of 12 Alaskan cities where prostitution was an unusually serious menace; and the results of this study will be used by the U. S. Public Health Service in prompt remedial action.

The war against venereal disease is not of the refrigerated type.

FIVE YEARS OF THE SUBCOMMITTEE ON MEDICAL CARE

IN 1944, the title of our Subcommittee on Organized Care of the Sick (a subcommittee of the C.A.P.) was changed to the Subcommittee on Medical Care. Dr. J. W. Mountin carried over as chairman; and his recent retirement[1] from the post makes it appropriate to recognize the remarkable achievements of the subcommittee during the past five years.

It was to this group that we owe the draft statement on "Medical Care in a National Health Program," adopted as an official statement of policy by the Association in the fall of 1944,[2] which remains a document of the first importance, as valid in facing the problems of 1949 as it was when first drafted.

The subsequent work of the subcommittee[3] has been no less noteworthy.

The subcommittee played a leading part in providing the staff work underlying the joint statement on "Planning for the Chronically Ill," adopted by the American Hospital Association, the American Medical Association, the American Public Health Association, and the American Public Welfare Association in 1947, and the statement on "Coördination of Hospitals and Health Departments" adopted by the American Hospital Association and the American Public Health Association in 1948.

Through its own staff, the subcommittee has undertaken studies of especially significant program developments, demonstrations, and trends in the field of medical care. These include a detailed study of "The Maryland Medical Care Program," and a review of the Bingham-Rockefeller program to improve the quality of medical care in Maine and Massachusetts entitled "Regionalization in New England." Two more reports, one on "The Quality of Medical Care in a National Health Program" and one on "Medical Care Activities of Full-time Health Departments" will appear in this JOURNAL during the next few months.

The vital health blood of our Association comes from the outstanding contributions of its standing committees and their subcommittees. Among these contributions those of Dr. Mountin and his associates and their keen and able staff rank very high.

REFERENCES

1. Succeeded by Dean A. Clark.
2. *A.J.P.H.* 34:1252 (Dec.), 1944,
3. Aided by a grant from the International Health Division of the Rockefeller Foundation.

LETTERS TO THE EDITOR

TO THE EDITOR:

Dr. Dublin's paper which appeared in the December issue of the *Journal*. "A Centennial of Public Health," reminded me of the even earlier legal establishment of a Board of Health for the City of Mobile than that of London. In gathering material for the January, 1939, issue of the bulletin of the Mobile County Board of Health, I ran across a record of an Act of the Legislature of Alabama, dated December 21, 1841, granting a Charter to the Mobile Medical Society. Section 6 of that Charter established the Society as a legal agency of the City of Mobile, and required it to organize a Board of Health and to procure necessary information upon the health of the City and the precautionary measures necessary to preserve the same.

We have the Minutes of the Mobile Medical Society covering its organization meeting on June 12, 1841. In these there is a Resolution to petition the Legislature at their next session for an act to incorporate the Mobile Medical Society. At an adjourned meeting on June 21, 1841, it was resolved that the President, Vice President, and Secretary of this Society constitute the Board of Health for the City of Mobile, and that the Mayor and Aldermen be requested to invest them with the proper authority of a Board of Health. On that same day the temporary Secretary of the Society wrote to the Mayor and Aldermen and advised them of the action of the Society. He gave the names of the "gentlemen composing this board" as Drs S. Mordecai, President; H. S. Levert, Vice President; Jesse Carter, Secretary. We find under date of June 22, 1841, the following Resolution by the Mayor, Aldermen, and Common Council of the City of Mobile: "that Doctrs S. Mordecai, H. S. Levert, & Jesse Carter constitute for this Municipal year a Board of Health for the City and that they be and are hereby invested with all the Authority conferred by An Ordinance constituting and establishing a Board of Health, passed on the 28th of January 1828; and that they be authorized to select from their number who shall be resident, visiting and consulting physician as required by said ordinance . . ." This was not enough, however, and there followed the State Legislature's legal establishment of the Board as referred to above.

We have not found any ordinances of the City of Mobile relative to the legally established Board of Health which indicate the exact year of their adoption. We do have, however, a volume of ordinances in force in 1858, and it contains at least three articles on health. Article I in Section 135 ordains "that it shall be the duty of the board of health in the city of Mobile, organized and appointed, under the provisions of an Act of the legislature of the State of Alabama, incorporating the 'Mobile Medical Society', passed December 21st, 1843 [the year of printing, we suppose—or a mistake] to prescribe and enforce such rules and regulations as in their opinion, may conduce to the health of the city.

"To examine into any and all cases of malignant, infectious, pestilential, and epidemic diseases, which may originate in the city, and the cause thereof.

"To enforce such measures as they may deem necessary to effect the removal of, or to check the same.

"To examine into all such nuisances

as may tend to affect or endanger the health of the city.

"And to report weekly to the mayor, aldermen, and common council of the city.

"Section 136. That if any person neglect or refuse to comply with the requisitions of the board of health, or shall prevent any member of the board from examining the yards, lots or outhouses of any person in which there is cause to believe that nuisances exist, he shall be fined ten dollars."

There are much longer articles on the subjects, "Duty of Citizens," and "Quarantine." In the article on quarantine the Board of Health was given the responsibility of advising the mayor.

Dr. Jerome Cochrane undoubtedly had the Mobile Board of Health in mind when he proposed to the Medical Association of Alabama that it offer to assume the functions of a State Board of Health.

O. L. CHASON, M.D.
Health Officer, Mobile, Ala.

March 22, 1949.

TO THE EDITOR:

Are We Not All Community Health Educators?—Education may normally be considered one of the functions of a health administrator or health director. In larger health departments, because of the multiplicity of tasks or duties which a health officer has to direct or supervise, it has become necessary to delegate to responsible assistants the direction of certain programs. Health education is one such grouping.

Whether the term "health educator" as applied to some one person on a health department staff is a "happy" designation is open to question. Actually every member of a health department staff is a health educator; otherwise he has no business being on the health department team. Thus to designate some one person *the* health educator is somewhat confusing.

The term health coördinator is sometimes applied to such a specialist, and if the functions of such a worker are mainly those of coördination, the term is not inappropriate. However, a health education specialist usually has to undertake organizing tasks. The term "community organizer," used by social workers, would seem to be particularly appropriate to one whose functions are chiefly organization functions, and organization to be effective involves coördination. But, a term such as "community health organizer" is too highfalutin a term.

Perhaps the confusion resulting in calling some one person on a health department staff *the* health educator would be largely resolved if such a person were hired as a supervisor of health education or as an administrative assistant to direct the health education activities of the staff working as a team. Certainly the division of health department activities should not be allowed to get in the way of the recognition on the part of the public that all members of a health department staff are health educators.

ALBERT R. RENWICK, DR.P.H.,
Sanitarian, District Health Unit No. 2, West Branch, Mich.

April 16, 1949.

Clearing House on Public Health Salary Information and Personnel Needs

MARYLAND SAYS ITS SAY ON SALARIES

During 1948 the Maryland State Health Department, through a special salary committee, analyzed the current salaries of county health officers and bureau chiefs of the State Department of Health. The Chairman of the Committee was A. W. Hedrich, Sc.D., Chief of the Bureau of Vital Statistics. Its report was published in mimeograph form in October, 1948, and has now been made available to the Clearing House.

The report, though less than a dozen pages in length, does far more than list current salaries and recommend higher ones. At the outset the citizenry, for whom the report is obviously intended, is reminded of the eminence of Maryland's public health. The state has had full-time health service in every county for nearly a quarter of a century.

With this appeal to state pride it then produces figures to show that a public health administrator's training costs between $25,000 and $30,000, that real incomes of public health administrators have dropped by one-fifth since 1940 while those of wage earners have increased nearly one-fifth and of physicians in private practice more than one-fourth.

Maryland public health officer salaries are also compared with those in the U. S. Public Health Service and with A.P.H.A. recommendations, in each case to the disadvantage of the Maryland physicians.

The citizens are also reminded of the heavy responsibilities carried by their public health administrators—responsibilities for administering dynamic preventive health and medical care programs. "What is ordinarily termed the preventive program has by no means reached a state of perfection," says the report.

Another example of telling the citizen what will hurt him the most is a listing of some recent results in loss of staff because of better salaries elsewhere—two physicians on $5,500 salaries leaving for other states to accept positions at $8,400 and $9,350, respectively; inability to fill certain key positions at salaries offered; emergency appropriations for increased salaries to meet offers made by other communities.

The salary recommendation for public health administrators is very simple: increase both the present minimum and maximum by something over 50 per cent.

Details of the report may be requested from A. W. Hedrich, Sc.D., Director, Bureau of Vital Statistics, 2411 N. Charles St., Baltimore 18.

CANADA BRACKETS QUALIFICATIONS AND SALARIES

It will be remembered that the Canadian Public Health Association made a study of public health salaries in Canada in 1946. This was published in the *Canadian Journal of Public Health* in January, 1947, and reviewed briefly in the Clearing House *A.J.P.H.* 37:6:762 (June), 1947.

This report has been revised with 1948 data and published separately in March, 1949. It was endorsed by the Dominion Council of Health at its 56th Annual Meeting in March, 1949.

Salary recommendations are shown for the same 8 categories of public health personnel included in the earlier report, but for most categories there are

more grades of salaries and qualifications than in the earlier report.

The recommendations for each type of position are suggested for use "as a basis or guide to authorities in the preparation of salary classification and schedule." Salary recommendations do not include cost-of-living bonus, car, or room and board allowance.

The report reminds the reader that the 1946 report said "The recruitment and maintenance of an efficient, qualified professional or technical staff by official health agencies has become a major problem." It adds, "In the light of what has happened in the past two years . . . it should now read 'the recruitment and maintenance of staff is *the* major problem facing agencies today.'" "Public health is not competing successfully with other sources of professional income that are available in the United States and Canada."

The report is an excellent example of significant findings simply presented when the material is current. Too often such reports are worked over so long that they have lost their timeliness by the time they are published.

The report is available from the Canadian Public Health Association, 150 College St., Toronto 5, probably at a moderate charge. It is also published in the *Canad. J. Pub. Health*, April, 1949.

SALARIES OF STATE ADMINISTRATIVE OFFICERS

State Government for February, 1949, has a double page spread showing annual maximum salaries of state and administrative officials in each of the 48 states as of January 15, 1949. In 7 states the health officer receives the highest salary of any administrator below the governor; in 6, he is one of two or more administrators to receive the highest salary. The highway commissioner receives the highest salary in the greatest number of instances; in 10 cases he receives the highest salary, and in 8 he is one of two or more to receive the highest salary. In Iowa, for example, he receives over a third more than the next highest officer, the attorney general, and 88 per cent more than the health officer and several other administrators. In Missouri, the highway commissioner receives 17 per cent more than his nearest competitor, the conservation commissioner, and one-third more than the health officer and a number of other administrators. In New Mexico, the highway commissioner as to salary is as important as the governor, and in Wyoming, within $20 annually of being as important. In Oklahoma, the highway commissioner receives a salary more than 50 per cent higher than the next highest paid administrator, the tax commissioner, and two-thirds more than the next highest, the commissioners of health and of welfare.

It would be interesting if to this tabulation were added an analysis of some of the factors found in the Maryland study discussed above, particularly cost of training, job turnover among the various types of administrators, and relative changes in real income.

In the same issue of *State Government* is Public Health in State Government, by John D. Porterfield, M.D., Ohio State Director of Health. He ends with these words, "Studies have demonstrated that effective public health programs can save their own economic cost many times over as well as provide for the people 'a condition of physical, mental, and social well-being and not the mere absence of disease or infirmity.'" This ought to be another fruitful line of inquiry for those who must decide the relative worth of various state administrators.

State Government is the monthly organ of the Council of State Governments, 1313 East 60th Street, Chicago 37—$.50 per copy, $5 annual subscription.

Credit Lines

THE NASHOBA ASSOCIATED BOARDS OF HEALTH

Referred to as an example of "local and individual initiative" in a recent Boston editorial, the Nashoba Associated Boards of Health has been attracting wide citizen and professional interest in Massachusetts. The Association is a local health unit, organized as a demonstration 18 years ago by the Commonwealth Fund with the hope that at the end of the 5 year trial period, some of the member towns would decide to support the project. As evidence of its success 10 towns, at the close of the experiment in 1935, voted to support the Unit team of a medical director, director of nursing, sanitarian, laboratory technician, and clerks.

The Nashoba Unit suffered with personnel shortages during the war. Nine towns, however, have kept the project going even with limited services available. Their faith is now being strengthened. In 1948, a medical director and a director of nursing were employed and the sanitarian returned from his army service. The immediate objective became that of enlarging the Unit, because it was serving a population of only 16,500, far below the desired number of 35,000. A concentrated program of public relations and health education was begun in October. The joint staffs of the Unit and the District Health Office of the Massachusetts Department of Public Health worked together and have made considerable progress toward the goal. As of July 1, 1949, 25,000 citizens in the Nashoba Valley will have the protection and services of a full-time public health team of the Nashoba Associated Boards of Health. This represents a 50 per cent gain in population served.

The essence of this demonstration has been caught in a statement made by Dr. Hugh R. Leavell, President of the Massachusetts Central Health Council who said: "We feel that this demonstration of coöperation of the towns in that area toward better living, is indeed a source of great hope for the future health of our citizens."

PLANNING A MASS X-RAY PROGRAM

For nearly 4 months in the summer of 1947 an intensive chest x-ray campaign was being carried on in Minneapolis. A report of this campaign has now been published giving complete details of its organization, medical policies, public relations, community organization, records system, finances and results. The report is well illustrated, readable, and generally well produced. It is available from the Minneapolis Community-Wide Chest X-Ray Survey, 240 South Fourth Street, Minneapolis.

SPECIAL PROBLEMS OF CHILDREN

The second edition of this valuable publication, *Some Special Problems of Children, Aged 2 to 5 Years* has appeared under the auspices of the National Mental Health Foundation, Inc., Philadelphia, in association with the New York Committee on Mental Hygiene, State Charities Aid Association. This pamphlet was planned by Nina Ridenour, Ph.D., now on the staff of the National Committee for Mental Hygiene. The foreword by Robert H. Felix, M.D., of the U. S. Public Health Service and now Chief of the new Institute on Mental Hygiene, commends this pamphlet to parents and to all others who work with children "because it is a most helpful guide in

assisting us to understand and to deal with vital and everyday problems of normal children."

This pamphlet includes such problems as When a child hurts other children, When he is destructive, When he uses bad language, When he won't share, When he still sucks his thumb, When he still wets, When he masturbates. and When he has fears. This deserves a wide circulation. The sponsors can be proud of the second edition.

ACCIDENT PREVENTION THROUGH COMICS

For some 15 years the Travelers Insurance Companies have been issuing an annual booklet on accident prevention. Its 1949 edition is called "The Human Race." Its series of accident facts and figures are interlarded with pages of satirical comics—the Galahad in the drawing room who is the roadhog on the highway, the man who buys all the car gadgets ever heard of, but does nothing about defective brakes, etc., etc. Unlimited permission to reproduce and free copies are available from Travelers Insurance Companies, Hartford, Conn.

MEDICINE, LAW, AND THE FAMILY

The New York Academy of Medicine and the New York County Lawyers' Association recently coöperated in an unusual Conference on Law, Medicine and the Unstable Family. The three sessions dealt respectively with the facts of family instability, its multiple causes, and the ways in which the family can be rendered more stable.

Representatives were drawn not only from the two professions, but from sociology, education, vital statistics, family consultation, family courts and psychiatry as well. The transactions of the Conference will be published and should be requested, if desired, from the New York Academy of Medicine, 2 East 103rd St., New York 29.

SURVEY NEARLY HALF A CENTURY OLD

On April 3, the *Survey Magazine* (112 East 19 St., New York) celebrated its 40th year. Its editor, Paul Kellogg, has been associated with it since the beginning, and editor for all but the first three years. Actually the *Survey* has a longer history having existed under various names back to the 80's. The April memorial issue has articles by Howard Rusk, M.D., and Justice W. O Douglas among others. Its lead article is, "The Key to Economic Development" by Dr. J. B. Condliffe, University of California.

The *Journal* joins with many other well wishers in greeting an elder brother in the field of public health and welfare on his last lap toward the half century mark.

A WEST VIRGINIA FIRST

West Virginia in March opened its first rheumatic fever diagnostic clinic—the 26th state to do so. Located in the Marion County Health Center at Fairmont, this is a coöperative effort among the county health department, the county medical society and Fairmont General Hospital. The county health officer, A. Glenn Evans, M.D., and two members of the medical society share in the administration of the clinic; the medical society designates members to serve in the clinic for a two month period at a time, and the hospital accepts children who need hospitalization.

Children are accepted on referral from the family physician. A diagnosis with recommendations, based on physical examination, chest fluoroscopy and x-ray, urinalysis, blood count, blood sedimentation test, and electrocardiogram, is sent to the family physician.

DISCRIMINATION LESSONS STEP BY STEP

A recent resolution of the Missouri Medical Association by deleting the word "white" from its Constitution,

throws its membership open to Negro physicians. All physicians from component county medical societies are now eligible. The resolution, introduced by Park White, M.D., pediatrician of St. Louis, was passed by a vote of 60 to 16.

THE INCENTIVE OF SELF INTEREST

Pulling the heart strings is perhaps the standard method of getting money from the public for worthy causes. But the New York University-Bellevue Medical Center of New York takes another tack in its current campaign to raise more than 32 million dollars needed to complete the center.

In the March issue of its bulletin, *The Medical Advance,* it asks New York industry for at least 1½ million dollars. Its argument is a chart showing a loss of nearly 500 million dollars to New York business firms and their employees from sick absenteeism, 40 million dollars lost by 3½ million workers because of colds, a third of a 500 sample of business executives examined found with health deficiencies. This is what industry could give money for: construction and equipment of the Institute of Industrial Medicine, construction of laboratories for the study of effects on workers of chemical compounds, provision of facilities for the Laboratory of Industrial Hygiene, construction of shops for training of disabled.

Anthony J. Lanza, M.D., is chairman of the Medical Center's Institute of Medicine.

A NEW NOTE ON HEALTH INSURANCE

Perhaps the Health Insurance Plan of Greater New York is the largest of the current voluntary medical care plans now operating in the United States. Originally fathered by Mayor La Guardia, it is now in its 3rd year of operation. Basic to its methods is group practice. The contribution that its experience may have to the present discussions of voluntary versus compulsory medical care insurance is dealt with by two separate writers in the *Sunday Magazine* sections of the two leading New York City morning newspapers. In the *New York Times* of March 6 appears "The Health Issue: A Middle Course," by David Heyman, President of the Health Insurance Plan. Its thesis is: voluntary insurance for all medical care plus group practice by doctors suggested as bases for a nationwide program.

A week later, Lewis K. Hill, staff writer, wrote, "Who Will Pay the Doctor?" for *This Week* of the *New York Herald Tribune.* Here too is a suggestion that group practice is an indispensable element in medical care insurance, whether voluntary or compulsory.

DR. MOENCH PROFILED

The March, 1949, *Health Officers News Digest* of the Public Health Committee Paper Cup and Container Institute, 1790 Broadway, New York 19, has a profile of G. Frederick Moench, M.D., Director of Health and Welfare at Oak Ridge, Tenn. It is a lively story of Dr. Moench as a country doctor, health officer, active PTA worker, and now engaged in setting up a civilian public health system for what used to be a closed city like a military reservation.

IDAHO NEWS LETTER

The Idaho Public Health Association, which has been an A.P.H.A. affiliate for 10 years, has begun the publication of a monthly news letter. It is one of the few affiliates that regularly publish such a bulletin. The first issue was that of October, 1948. It has carried full news of the progress of recent health legislation in Idaho, among which is a one mill tax levy exclusively for local health purposes. The *News Letter* is available from A. W. Klotz, Secretary, Idaho Public Health Association, Box 640, Boise, Idaho, *$1 per year.*

U. S. HEALTH PICTURE REPRINTED

Anyone who has been unable to get *Guide to Health Organization in the United States,* first published by the Public Health Service in 1946, can now have it. "This panoramic view of the entire health structure of the nation" has had 1948 reprinting. Among its virtues are a bibliography and 6 appendices with a wealth of statistical information, all of it, however, still as of 1946. U. S. Gov. Ptg. Office, Washington, D. C., *20 cents.*

WORTH ACQUIRING

Where Shall We Eat? is a skit for use in training food handlers. In two acts, taking perhaps 15 minutes to play, it points out all the horrors that can be perpetuated by a careless waitress and, in contrast, the proper attention to sanitary service. A special pedagogic note is that the same waitress can be either the careless or the perfect one depending on her employer's attitude and the inservice training he provides. Prepared by the Cook County Department of Public Health from which it is available, 737 South Wolcott St., Chicago 12.

Dr. Fraud Confesses is an 8 page comic in four colors prepared for the American Cancer Society by Brevity Inc. Its first printing of 500,000 has been distributed to the 60 state and local cancer societies and is available for the public. Aimed at an adult audience, its theme is that cancer in its early stages can be cured and that the various fads and quackeries delay effective treatment and thus cause needless deaths. American Cancer Society, 47 Beaver St., New York 4.

Helping Families Plan Food Budgets has been prepared by the Bureau of Human Nutrition and Home Economics of the U. S. Department of Agriculture. It is designed as a guide for social workers, nutrition teachers, and others who are helping families get nutritionally adequate meals for the money they have to spend for food. "Better diets can mean better health for thousands," it says. Superintendent of Documents, Washington 25, D. C., *15 cents.*

Food Value Charts are 12 in number, exhibit size on heavy cardboard in pleasing maize and blue colors. These are revisions of charts first published in 1946 by the Philadelphia Child Health Society, with the coöperation of the Nutrition Division of the Pennsylvania Health Department and Philadelphia nutritionists. On the back of each chart are stated the September, 1948, revised Recommended Dietary Allowances of the Food and Nutrition Board of the National Research Council as well as facts about losses of various nutrients during cooking. Philadelphia Child Health Society, N. E. corner 7th & Delancy Streets, Philadelphia 6. Set of 12 charts, *$1.00.*

Nutrition Teaching Aids for the Use of Professional People, a set of food value charts, was originally prepared for public health workers in Cleveland. They have now been made available at cost for wider distribution. Each set includes 15 cards—3½" x 6½"—which illustrate by colored bars the comparative food value of milk and coffee, whole milk and skim milk, fish and meat, etc. Nutrition Association of Greater Cleveland, Room 1016, 1001 Huron Road, Cleveland 15, Ohio. Single sets are *30 cents;* quantities of 25 or more are *25 cents* a set.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

The Problem Drinker—*By Joseph Hirsh. New York: Duell, Sloan & Pearce, Inc.,* 1949. 196 pp. Price, $3.00.

A useful book. A summary of fact and opinion without novelty of information or originality of viewpoint. This well defined and much exploited segment of the alcohol problem in contemporary U.S.A. is dealt with rationally and with good purpose. Many anxious about themselves or their friends will be wise to study all the ten chapters and use appropriately the four appendices for which they will find the index quite adequate.

We have here much honest competent fact, diluted with about the same amount of emotional resistance to the practical implications of these facts.

As the genial and facile author says "science and objectivity tilt with emotion and controversy."

While disregarding all users and misusers of beverage alcohol except the minority, the problem drinker, Mr. Hirsh accepts the statement of Jellinek that "more people drinking means, of course, more chronic alcoholics." The first three chapters give some historical background and a partial story of the essentials of alcohol's effect upon man. Chapters IV, V, and VI present the familiar picture and plea for irresponsibility, of the alcohol factor, and emphasize the frequency of prior psychic abnormality of the problem drinker.

The seventh chapter, on Alcoholics Anonymous, could not be bettered if the author had written as one A.A. Present organization and accomplishment and signs of still better progress for the future are brought right up-to-date in Chapters VIII and IX. The immediacy of need of social as well as professional progress is well stressed in the final chapter.

HAVEN EMERSON

Public Health in the World Today—*Edited by James Stevens Simmons; Assistant Editor, Irene M. Kinsey; Foreword by James Bryant Conant. Cambridge, Mass.: Harvard University Press,* 1949. 332 pp. Price, $5.00.

Twenty-four distinguished contributors provide timely information in this symposium devoted to community, national, and world health. President Conant emphasizes the importance of keeping people well if we are to attain the social objectives of making the new knowledge equally effective in the lives of all the people of a nation, and discusses circumstances which caused an acceleration in the march of organized society toward increased health.

Evidence is presented dramatically by the editor to indicate how unnecessary are infections and death from smallpox, besides the accompanying hysteria and expenditures of millions of dollars. The evolution, significance and professional aspects of public health, the evaluation of medical care needs, medical education, the federal civilian, and military health and medical care services, nutrition, occupational medicine, maternal and child health, new problems of the atomic era, and international problems are among the featured topics considered by leaders fully equipped for their tasks.

Congratulations and appreciation are due for this assembly of stimulating information, with the parts so well correlated, in a well printed book which every student of medicine, of public

health, and of world affairs should read. Other professional groups will find this volume an invaluable source of authoritative statements, dedicated to a new concept of service and to a new vision of the world of the future, in which man "and all his kind can live, work, and walk with the dignity of a civilized animal in full physical, mental, and moral health."

IRA V. HISCOCK

Child Health Services and Pediatric Education. *Report of the Committee for the Study of Child Health Services. The American Academy of Pediatrics with the Coöperation of the U. S. Public Health Service and the U. S. Children's Bureau. New York: Commonwealth Fund,* 1949. 270 pp. Price, $3.50.

This report is a volume demanding the attention and study of conscientious public health workers. It disturbs complacency by its clear, persuading facts but it is encouraging in its details of "attainable levels of performance."

The study and report owe much of their strength to the interest and participation of the practising doctors of this country. The report, published by the Commonwealth Fund, is particularly notable for its concise, brief language and superior graphic presentations. Only facts are reported; recommendations and action are the responsibility of the readers and the state committees which have been formed. The method of presenting facts alone permits their analysis without the negativism often engendered by recommendations. This will not fail to arouse the urge for action among competent public health workers, however.

Three major sources of health services, private practice, hospitals, and community services, are examined in detail. Comparisons are made state by state, by regions, and by a valuable method of county groups. The selection of the critical indices for study will arouse the interest of clinicians, administrators, and all interested in evaluation.

Public health and preventive pediatrics are extensively studied. State health officers, directors of maternal and child health programs, county health officers and their staffs will not find comfort but will be challenged by the record of services we have been able to provide rural areas.

ROSCOE P. KANDLE

Personal and Community Health —*By C. E. Turner. (8th ed.) St. Louis: Mosby,* 1948. 565 pp. Price, $4.00.

Good books grow, and sometimes it takes a long time for them to ripen and mature. They are the expression of experience and their development cannot be hurried. This is especially true of textbooks. *Personal and Community Health* represents the fruit of many years of teaching health to college men and women. It is not only expressive of the knowledge necessary for good health, but also an understanding of those who must set the standards of living in the modern world. The information presented is based upon sound and progressive principles. The approach is positive, based upon conviction but accompanied by a spirit of openmindedness.

The eighth edition is an extensive work covering wide areas in both personal and community hygiene. The very difficult problem of including both fields in one book is well handled. Of necessity, some subjects are discussed but briefly. Part I, with 19 chapters, deals with personal health. Twelve chapters on community health compose part II. Good references are found at the end of each chapter. Appendix A, with a wealth of material on communicable diseases, and Appendix B, with a short but helpful discussion of disinfectants, are also included. An ex-

tremely helpful glossary to the layman concludes the work.

The book is well written and the material presented in a dignified but attractive manner. There are numerous illustrations. College teachers and students of hygiene should be interested in the volume. It is a very good book.

W. R. MORRISON

The Case of Augustus D'Esté—*Edited by Douglas Firth. New York: Macmillan*, 1948. 58 pp. 3 illus. Price, $1.75.

This little book represents a footnote in the history of medicine. It is based on a small collection of letters, diaries, account books, and other manuscripts, kept or written between 1793 and 1847 by Lady Augusta d'Ameland, wife of Prince Augustus Frederick, sixth son of George III of England, and their son Sir Augustus D'Esté. In 1940, when waste paper was being collected for conversion into pulp, these papers came to light. Much of the material had fallen prey to the gnawing criticism of rats, but what survived is of considerable interest. It contains what may be the first clinical description of disseminated sclerosis, and written by the patient. The manuscript is now in the possession of the Royal College of Physicians, London, and is reproduced by their permission. For half his life Augustus D'Esté was a victim of disseminated sclerosis, and he wrote a vivid account of it. He began to note his symptoms in 1830 and stopped in 1844. It is a record of personal experiences which could not have been suggested by any medical book, as the disease was not adequately described until twenty years after D'Esté's death in 1848. This small volume which can easily be read in one hour is recommended to all who are interested in disease from the patient's point of view and to those interested particularly in disseminated sclerosis.

GEORGE ROSEN

Proceedings of the Fourth International Congresses on Tropical Medicine and Malaria, May 10–18, 1948, Washington, D. C. *Washington: Dept. of State. U. S. Gov Ptg. Office*, 1948. 946 pp.

This volume, which has been prepared and edited by the Secretariat of the Congresses, and in collaboration with the Division of International Congresses of the U. S. Department of State, goes back to the consistent work over the years of Wilbur A. Sawyer, M.D., Secretary General, and his able associates. As Dr. Scheele, the President of the Congresses, points out in the foreword, the proceedings indicate the breadth of the program and the diversity of its subjects. There were also the intangible but nonetheless substantial values provided by the Congresses, such as the spirit of fellowship and good will which pervaded all of the activities.

The scientific work of the Congresses was divided up into sections on research and teaching institutes, on tropical climatology and physiology, on bacterial and spirochetal diseases, on virus and rickettsial diseases, and on malaria. In addition, there are reports on the official sessions and the special exercises in commemoration of the demonstration by Walter Reed of the mosquito transmission of yellow fever, as well as commemoration of the 50th anniversary of the discovery by Ronald Ross of the method of transmission of malaria.

The U. S. Department of State and the United States Government Printing Office have set through this volume a high standard for similar publications of the future.

REGINALD M. ATWATER

How to Live Longer—*By Justus J. Schifferes. New York: Dutton*, 1949. 255 pp. Price, $3.00.

This book, written in an easy-to-read style, brings together materials

giving the present status of "eleven killers of Americans: 1949." The assumption is made that a better informed public can reduce mortality rates in cardiovascular-renal diseases, cancer, accidents, tuberculosis, pneumonia, syphilis, diabetes, premature births, and suicides to the extent of 250,000 lives saved each year. The author presents statistics on trends and information as to what is now known about each "killer," including symptoms to look for, treatment, and advice as to what to do.

Although few statistical tables appear, the body of the book is given over to figures of one kind or another supporting the thesis that lives can be saved.

The advice given in each chapter falls into three major categories: (1) recognize symptoms, (2) call the physician in emergencies, for periodical examinations, and when the "little danger signals flash," and (3) assume responsibility as a citizen to see that community diagnostic and treatment facilities are available.

The chapter on "Suicide — The Ghost," is the least effective. The brief discussion of motives for suicide based on Dr. Karl Menninger's *Man Against Himself,* is so condensed that it is questionable if the reader uninitiated into psychiatric concepts can get much out of it. In the light of the complexities of the bases for suicide, one wonders if the reader will be able to function better in a "preventive" program in this area.

This reviewer does not believe with the author that "this book will hope to bring a new focus on the 'health of the nation' with greater emphasis on health education as against medical economics." In practically every instance, the author shows the need for diagnostic and treatment facilities if the education of the individual is to bear fruit in action. A combination of health education *and* medical economics is indicated.

DOROTHY B. NYSWANDER

Tests and Measurements Applied to Nursing Education — *By Hyman Krakower. New York: Putnam,* 1949. 179 pp. Price, $3.50.

Administrators, supervisors, and teachers in all fields of nursing are becoming increasingly aware of new methods of testing and measuring accomplishments, whether the accomplishments concern students' scores in classwork, relative time and costs of nursing services, or the ranking of candidates for appointive positions.

The title "Tests and Measurements Applied to Nursing Education" suggests that nurses will find useful material applicable to their problems in testing students and staff members, and the first 85 pages of this book fulfil this hope to some extent. The author covers the first steps in tabulating, classifying, and determining modes, means, medians, and percentile ranks of scores. On proceeding to more advanced calculations, however, the author's presentation becomes confused. It lacks: (1) clarity, because the basic principles are not known to nurses and are not explained, the sentence structure is frequently ambiguous and the thought underlying the statements is not clear. (For example: the first sentence of the new section explaining Binomial Expansion (page 86) reads: "Where there is one factor involved, it may take one of two forms, i.e., either happening or not happening."); (2) accuracy, because the writer tries to cover too much ground in too little space; and (3) applicability, because the purpose of the calculations is not clearly defined and the nurse is not shown how to use the results after the calculations are made.

In the main the subject matter on pages 87–138 is too advanced for those

nurses who have not had special preparation in tests and measurements, or who are not natural-born mathematicians and statisticians. Few nurses in any case would perform the calculations given in these chapters in their daily work, for example, positive and negative skewness.

Chapter X attempts to cover the subject of test construction in ten pages. This is one of the much needed techniques among teachers, but is so superficially dealt with here as to be dangerous. There is far more to test construction than a mere listing of the various forms of objective questions. (Incidentally, true-false questions are presented without any mention of the fact that this form of question is discredited for professional tests and has been discontinued by the best test technicians.) The author fails to give instructions that would aid in writing discriminating multiple-choice questions to sample knowledge and judgment and leaves out the usual warnings against the pitfalls in writing the distractors or wrong choices.

"Reliability" and "validity"—two really essential definitions in a nurse's understanding of testing—are disposed of in a few brief sentences without illustration.

There are simpler and more accurate texts for nurses who wish to become familiar with the elementary techniques of this subject. If more advanced procedures are needed, the best advice is to seek the aid of a test technician and not attempt these skilled procedures—certainly not after a mere reading of a series of mathematical steps.

DOROTHY DEMING

Odors, Physiology and Control—*By Carey P. McCord and William N. Witheridge. New York: McGraw-Hill,* 1949. 405 pp. Price, $6.50.

The recent focusing of national attention on the health and safety, as well as esthetic and economic, implications of air pollution makes this volume on the physiology and control of odors particularly timely and valuable.

This is the first time that the subject has been treated in one volume and in such an extensive manner. The index itself is particularly orderly and well developed and enables quick referral to the wealth of material presented in the 23 chapters. Beginning with the chapter on the olfactory system and describing the physiology involving chemical constitution, the book includes a detailed classification of odors and a thorough discussion of the many practices involved in the control of odors. The latter part of the book contains some very informative data on the making of an odor survey and the legal aspects of odor nuisances. The authors have also prepared a very extensive bibliography of 125 pages, grouped into a classification similar to the one employed in introducing the subject matter in the volume itself.

This volume is unique in many respects. The manner in which the data are presented not only makes it easy for the reader to understand a rather technical subject, but also adds interest. Many illustrations have been utilized, and the historical development of the problem has been traced by drawing considerably on ancient documents.

This book should be a very useful tool not only to industrial hygienists and other public health workers, but also to architects, housing authorities, city planners, and the legal profession.

J. J. BLOOMFIELD

Psychiatry for the Millions—*By Benzion Liber, M.D. New York: Frederick Fell,* 1949. 297 pp. Price, $2.95.

In this addition to the rapidly growing library of psychiatric literature for the layman, Dr. Liber favors the common sense, practical interpretation of

mental illness and its treatment. The layman will appreciate the rather down-to-earth descriptions of personality disorders and will undoubtedly find some fascination in the many case reports that are included to illustrate the various deviations from the normal. Because of a tendency to oversimplify, however, cause and effect are so often taken for granted that the reader is apt to draw unwarranted conclusions as to the fundamental and precipitating causes of mental disease. Moreover, in many instances, the impression is left that in some of the seemingly deep-seated and pervasive emotional disturbances described, a few conversations with the psychiatrist were sufficient to yield a cure. The author would not have prejudiced the case for psychotherapy had he sacrificed some of the illustrative cases for a fuller description of the dynamics of psychiatric disorders. Moreover, had he done this, the book would be more readable, since there is a tendency to repetitiveness resulting from the inclusion of so many clinical examples.

The subject matter covers a wide range of topics and includes chapters on bringing up the child, juvenile delinquency, psychosomatic medicine, sex and marital problems, alcoholism, and on war and post-war mental health. Descriptions of various types and degrees of psychoneuroses and psychoses are included and briefly discussed. The final chapter is devoted to prevention and treatment.

In this last chapter the public health worker and physician will be grateful for the frank and forthright manner with which the author discusses the current popularization of psychiatry in novels, plays, and the moving pictures, the uses and abuses of psychoanalysis, and the dangers of quackery. Greater emphasis should have been placed in this last chapter upon the need for more professional personnel, and for more facilities capable of providing programs of mental hygiene, child guidance, and research as important measures for the prevention of mental illness. Perhaps the weakest aspect of this last chapter is the section in which general recommendations for achieving mental health are offered. These recommendations consist, on the whole, of a series of "do's and don'ts" that for the modern individual are easier to read than to practise. These recommendations essentially counsel a clean healthy life and include rather dogmatic statements about the evils of constipation and of cigarette smoking for which clinical proof is as yet lacking.

This book has greater interest for the layman than for the professional worker, and its chief value resides in its avoidance of mumbo-jumbo and in the assurance that it will give to many individuals the concept that emotional instability can be treated and controlled. HENRY B. MAKOVER

Premature Infants — *By Ethel C. Dunham. Washington, D. C.: Supt. of Documents,* 1948, *Children's Bureau Publication No. 325.* 401 pp. Price, $1.25.

The fact that textbooks on this extremely important subject are few in number makes this addition to medical literature particularly welcome.

The contents of the manual are divided into two main parts: general considerations and clinical considerations.

Part I deals with the definition, diagnosis and incidence of prematurity, and the physical growth and development of premature infants. The causes and prevention of premature birth are discussed and attention is drawn to the high mortality of the premature infant. Part II covers the general care and management of premature infants, especially in relation to their physiologic handicaps and nutritional requirements. It includes sections on congenital mal-

formations, birth injury, infection, abnormal blood conditions and metabolic and nutritional disturbances.

In addition to 31 illustrations, this manual contains many tables. The subject matter is well written and attractively set out. Each section is summarized, and a good index is provided.

This is the most comprehensive work yet published on the subject. Although it gives too much detail for the average student doctor or nurse, it certainly will be agreed that no physician or nurse undertaking the care of premature infants can afford either to omit reading this manual or to omit keeping the copy constantly available for reference.

A great deal is expected from an author so experienced in her subject as Dr. Ethel C. Dunham, and this manual should meet the highest expectations.

V. MARY CROSSE

Bacterial and Mycotic Infections of Man—*Edited by René J. Dubos. Philadelphia: Lippincott,* 1948. 785 pp. Price, $5.00.

This book is the fraternal twin of *Viral and Rickettsial Infections of Man* by Rivers, et al. The editorship of Réne Dubos, another distinguished member of the Rockefeller Institute, assembles the specialized knowledge and viewpoints of 33 outstanding colleagues in research groups of the United States and Canada. The two books are very valuable in making available to clinicians and public health workers current discoveries in research. The pair are identical in handsome appearance, in freedom from typographical errors, and under the sponsorship of the National Foundation for Infantile Paralysis, in availability at extraordinarily low cost.

In keeping with the perspective of the editor, emphasis is on host-parasite relationship rather than the microörganism. The first quarter of the book is preparatory background. After Dubos and Pappenheimer discuss morphology and physiology of bacteria, Francis reviews parasitism and disease, MacLeod and Pappenheimer consider the role of the bacteria, and Francis the response of the host. Chase focuses on the interplay of host and parasite in the allergic state and Treffers in their immunological and immunochemical manifestations.

In the body of the book the specific microörganisms are described under the general headings of introduction (definition), history, morphology, cultural characteristics including nutrition and metabolism, resistance, variation, distribution and range of pathogenicity, pathogenesis, immunity, diagnosis, treatment, epidemiology and control. As a sample of famous authorities may be cited Mueller (Corynebacteria), MacLeod (Pneumococci), Nungester (Anthrax Bacillus), Meyer (Pasteurella), Conant (fungi). The concluding section contains a valuable discussion of principles of chemotherapy by Davis, a masterly condensation of the principles of epidemiology by Maxcy, and a practical consideration of identifying pathogenic bacteria by Murray and Kalz.

The material is not presented as pap. The authors strive to write in terms which all can follow, but some phases of metabolism and immunochemistry defy translation into terms with which most of us can cope. While neither conceived nor appropriate primarily as a textbook in medical bacteriology, some of the treatises are more exhaustive than those in current texts, but a few presentations tend to be cursory. Certainly study of the book will reward neophytes and veterans both of clinical medicine and of public health.

CHARLES EDWARD SMITH

The Hospital in Contemporary Life—*By Nathaniel W. Faxon, M.D. Cambridge, Mass.: Harvard University Press,* 1949. 288 pp. Price, $5.00.

Eight doctors of medicine, specialists

in different fields including an outstanding hospital director, contribute discussions in this volume on the relationship of the individual to the hospital and of the hospital to society. Much material in the book represents a digest of the literature, and credit is given to the report of the Commission on Hospital Care.

The literary style is effective, and the information presented affords an opportunity to acquire an understanding of the hospital, especially for hospital trustees, members of auxiliaries, and other non-professional hospital groups, as well as serving as a useful reference volume for students of public health, education, and social service. Perhaps a little extravagant are the publisher's note as "the most thorough-going and thought-provoking discussion . . ." and one of the author's statements concerning social forces to the effect that—"This led to the *eradication* of hospital infections. . . ."

It is gratifying to observe increasing team-play between hospitals and other official and voluntary health agencies toward a common goal of increased health, productivity, and mutual understanding. IRA V. HISCOCK

Veterans Administration Technical Bulletins. Series 10. Vol. II.—*Washington, D. C.: Veterans Administration,* 1949.

This is the second volume of a series of articles which the Veterans Administration has published and is distributing to its medical staff. The purpose is frankly educational. Brief summary articles covering a number of subjects "have the advantage of permitting more general presentation than is allowed by most journals and of providing more rapid publication than is possible in textbooks."

This volume contains a dozen articles on such subjects as "Rocky Mountain Spotted Fever," by Norman H. Topping, M.D.; "The Management of Vivax Malaria in the Veteran," by Harry Most, M.D.; "Late Residuals of Primary Coccidioidomycosis," by George C. Owen, M.D., and "Electric Shock Therapy" and "Insulin Shock Therapy" by competent authors.

Dr. Paul B. Magnuson, Chief Medical Director of the V.A., and the Administration are to be congratulated on the articles themselves, but more importantly on this type of review which must have a vital influence on medical personnel employed by the V.A.

REGINALD M. ATWATER

Microbes Militant—*By Frederick Eberson (a revision of "The Microbe's Challenge"). New York: Ronald Press,* 1948. 401 pp. Price, $4.50.

The subtitle of this book, "The Story of Modern Preventive Medicine and Control of Infectious Diseases," most adequately describes the content and should arouse the interest of the public health worker. However, when one glances over the chapter and section titles, the first reaction is one of aversion which is immediately replaced by the assumption that the book is written for purely lay readers. This is an entirely erroneous concept.

Dr. Eberson admirably and simply carries the reader through the fundamental discoveries into the more complex problems of microörganisms, such as variation and mutation, modern concepts of immunity, some of the important chemical and physiological aspects, the action of the antibiotics, the bacteriophages, and finally a discussion of a few of the major challenging problems of preventive medicine.

The book, one in the Humanizing Science Series, is written in a most interesting prose style with sufficient humor and dramatic presentation to be entertaining and relaxing. The author has attempted to solve, explain or interpret some of the baffling problems

of preventive medicine as they pertain to microbiology in the light of modern research. In some instances this has been accomplished with astounding simplicity and clarity, in other instances, present available evidence would lead some to disagree rather violently with a few of the author's interpretations.

The book cannot be recommended as an authoritative text, for which it was obviously not intended, but can be recommended for entertaining reading for all public health personnel, and would be particularly valuable for practising physicians who wish an easy review of some of the important recent developments in the field of microbiology.

LEE POWERS

A Textbook of Entomology—*By Herbert H. Ross. New York: Wiley,* 1948. 532 pp. 434 fig. Price, $6.00.

Professor Ross, in this new *Textbook of Entomology,* has succeeded admirably in his purpose to present "under one cover the fundamental aspects of entomology, organized so as to give students a general idea of the entire field," and to serve the need of the seeker for background information as well as that of the budding specialist. This he has done by emphasizing basic principles throughout and including enough pertinent detail to demonstrate those principles without burying them. His examples and illustrations are well selected, and his exposition so organized, balanced, and integrated that the whole is satisfyingly adequate. This compact and beautifully illustrated volume offers a readable, broadly conceived, and sound scientific introduction to the complexities and wonders of insect life.

The ten chapters deal with the history of entomology and its outstanding early personalities (25 pages); the classes and subclasses of Arthropoda (32 pages); external anatomy (42 pages); internal anatomy (19 pages); physiology (53 pages); the life cycle (including embryology and seasonal cycles, 47 pages); the orders of insects (with keys and references to the common families of the larger groups, 206 pages); the geological history of insects (21 pages); ecological considerations (37 pages); and control considerations (33 pages). Economic species are abundantly included as examples but are not treated individually; injury and control are simply summarized as to types and principles. Recent developments, like DDT and the use of electron microscopy, are appropriately noted. It is the only general textbook of entomology extant that adequately presents modern concepts of physiology, comparative morphology, and ecology, without at the same time slighting taxonomy.

The unavoidably arbitrary selection of material and viewpoints inherent in a simple and concise presentation of this kind has been tempered by the mature judgment born of the author's years of experience as teacher and investigator. The writing is lucid and a model of straightforward and orderly style. Minor inconsistencies and factual or typographical errors and omissions are so few as to be inconsequential in a work of such scope and merit. The format of the book is pleasingly neat, the type easily read, the figures clearly printed, the binding serviceable, and the index not exhaustive but adequate.

The book is of interest to public health workers not as a laboratory manual, but as a source of background information on arthropods in general. It can be highly recommended as an excellent entomological guidebook.

ALBERT MILLER

Physical Examination of Selective Service Registrants—*Special Monograph No. 15. Selective Service System 1947. 3 vols. Washington, D. C.: Gov. Ptg. Office,* 1948. Price, Volume I, $1.25; Volumes II and III, $1.00 each.

This is one of a series of 18 invalu-

able monographs describing the operation of the Selective Service System. As indicated by the title, this monograph deals with the medical aspects of the system. Volume I contains 16 chapters describing the origin and operation of the medical organization of Selective Service, not only in World War II, but also previous wars, with 3 chapters devoted to World War I experience, and 2 to peacetime planning and operations. The balance of the text is devoted to the second World War, special chapters dealing with medical functions, classifications, examination procedures, bases for selection, standards, analysis procedures, and administrative relationships.

The text is supplemented by 6 appendices which comprise part of Volume I and all of Volumes II and III. These appendices set forth in detail the physical standards for selection, the administrative regulations for medical examinations, the forms used and instructions for their use, and finally an entire volume of 56 tables summarizing the results of the physical examinations. These tables are broken down by regions, by states, by age and color of registrants, and by periods of time over which the system was operative. There is no breakdown by counties, this being kept for a separate series of volumes.

These volumes constitute a veritable gold mine of highly valuable information, not only on the results of the physical examinations under Selective Service, but also upon the operation of the program. Of particular interest is a brief analytical chapter entitled Lessons from Experience. The narrative portions of these volumes constitute an important record of an essential and much unappreciated part of the war record; the statistical tables will serve for a long time as one of our most valuable records of the physical status of an important segment of our nation. The Selective Service is to be commended on the prompt and careful presentation of this material in such highly usable form.

GAYLORD W. ANDERSON

Statistical Abstract of the United States, 1948 (69th ed.)—*Compiled under the Supervision of Morris H. Hansen. Washington, D. C.: Supt. of Documents, Govt. Ptg. Office,* 1948. 1,054 pp. Price, $2.75.

This is one of the books which public health statisticians should keep within handy reach. This volume, published annually, contains the most important statistics on the industrial, social, political, and economic organization of the United States.

Because the book covers such a vast scope, the data are largely restricted to those for the nation as a whole. and to some extent for states and large cities. Although information is not shown in this volume for minor civil divisions, it can readily be obtained from the sources given at the foot of each table.

This book of 1,054 pages has two purposes: (1) To serve as a convenient reference volume for quantitative summary information; (2) To serve as a guide to important sources of more detailed data. Just a glance at the titles of the 32 chapters conveys some idea of the scope of the publication.

In this 69th edition certain new subject material is presented on population forecasts; employment in the executive branch of the federal government; consumer income; current industrial production; and several other subjects.

One of the most important features of the book is the bibliography of sources of statistical data which appears at the end of the volume.

MARY DEMPSEY

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ALCOHOL AND HUMAN AFFAIRS. Willard B. Spalding and John R. Montague. New York: World Book, 1949. 248 pp. Price, $1.64.

CHILD HEALTH SERVICES AND PEDIATRIC EDUCATION. Report of the Committee for the Study of Child Health Services. The American Academy of Pediatrics with the Coöperation of the U. S. Public Health Service and the U. S. Children's Bureau. New York: Commonwealth Fund, 1949. 270 pp. Price, $3.50.

DIAGNOSIS OF VIRAL AND RICKETTSIAL INFECTIONS. Frank L. Horsfall, Jr., Editor. New York: Columbia University Press, 1949. 153 pp. Price, $3.75.

EPIDEMIOLOGY OF HEMOLYTIC STREPTOCOCCUS, THE. Alvin F. Coburn and Donald C. Young. Baltimore: Williams & Wilkins, 1949. 216 pp. Price, $4.00.

EVALUATION OF CHEMOTHERAPEUTIC AGENTS. Colin M. MacLeod, Editor. Symposium held at the New York Academy of Medicine March 25 and 26, 1948. New York: Columbia University Press, 1949. 205 pp. Price, $4.00.

FOOD POISONING. G. M. Dack (rev. ed.). Chicago: University of Chicago Press, 1949. 170 pp. Price, $3.75.

FOR EFFECTIVE NEUTRALIZATION OF INDUSTRIAL WASTES. Philadelphia: Leeds & Northrup, 1949. 19 pp.

FUNDAMENTALS OF PULMONARY TUBERCULOSIS AND ITS COMPLICATIONS. Sponsored by the American College of Chest Physicians. Springfield, Ill.: Thomas, 1949. 470 pp. 182 illus. Price, $9.50.

GOVERNMENT OF CITIES IN THE UNITED STATES. Harold Zink (rev. ed.). New York: Macmillan, 1948. 605 pp. Price, $5.00.

GUIDING HUMAN MISFITS. Alexander Adler. New York: Philosophical Library, 1948. 112 pp. Price, $2.75.

HEALTH FILM PROGRAM FOR AMERICA, A. New York: The World Today, 1949. 28 pp. Price, $1.00.

JÁNOS, THE STORY OF A DOCTOR. John Plesch. New York: A. A. Wyn, 1949. 561 pp. Price, $5.00.

JOSEPH BOLIVAR DELEE. CRUSADING OBSTETRICIAN. Morris Fishbein with Sol Theron DeLee. New York: Dutton, 1949. 297 pp. Price, $5.00.

MANUAL OF THE INTERNATIONAL STATISTICAL CLASSIFICATION OF DISEASES, INJURIES, AND CAUSES OF DEATH. Volume I. (Sixth Revision of the International Lists of Diseases and Causes of Death.) Adopted 1948. New York: World Health Organization. 376 pp.

MEDICAL MICROBIOLOGY FOR NURSES. Erwin Neter. Philadelphia: Davis, 1949. 441 pp. Price, $4.00.

NUTRITION AND THE SOIL. Dr. Lionel Picton. New York: Devin-Adair, 1949. 359 pp. Price, $4.00.

ORGANIZATION AND ADMINISTRATION OF INTRAMURAL SPORTS. Louis E. Means. St. Louis: Mosby, 1949. 403 pp. Price, $5.75.

PRESENT CONCEPTS OF REHABILITATION OF TUBERCULOSIS. Norvin C. Kiefer. New York: National Tuberculosis Association, 1948. 354 pp. Price, $3.50.

PRINCIPLES OF HEALTH EDUCATION APPLIED. Clifford Lee Brownell. New York: McGraw-Hill, 1949. 354 pp. Price, $3.75.

PUBLIC RELATIONS COMMITTEE, THE. Why and How It Works. David M. Church. New York: National Publicity Council, 1949. 27 pp. Price, $1.00.

PSYCHOLOGY OF EVERYDAY LIFE. James Drever (11th ed.). Pacoima, Calif.: Sherwood Press, 1948. Price, $3.00.

RETHINKING URBAN REDEVELOPMENT. Coleman Woodbury and Frederick A. Tutheim. Chicago: Public Administration Service, 1949. 26 pp. Price, $1.00.

SOME COMMON PSYCHOSOMATIC MANIFESTATIONS. J. Barrie Murray. New York: Oxford University Press, 1949. 96 pp. Price, $2.50.

SOME SPECIAL PROBLEMS OF CHILDREN AGED 2 TO 5 YEARS. Nina Ridenour and Isabel Johnson (2nd ed.). Philadelphia: National Mental Health Foundation, 1949. 72 pp. Price, $.25.

STATE CHILD-LABOR STANDARDS. Lucy Manning and Norene Diamond. U. S. Dept. of Labor, Bureau of Labor Standards, Bulletin No. 98. Washington: U. S. Govt. Ptg. Office, 1949. 182 pp.

SYPHILIS: ITS COURSE AND MANAGEMENT.

Evan W. Thomas. New York: Macmillan, 1949. Price, $3.00.

TEACHING POSTURE AND BODY MECHANICS. Ellen D. Kelly. New York: Barnes, 1949. 178 pp. Price, $3.75.

TEMPERATURE AND HUMAN LIFE. C.-E. A. Winslow and L. P. Herrington. Princeton, N. J.: Princeton University Press, 1949. 259 pp. Price, $3.50.

THANK GOD FOR MY HEART ATTACK. Charles Yale Harrison. New York: Henry Holt, 1949. 144 pp. Price, $2.50.

TRACE ELEMENTS IN FOOD. G. W. Monier-Williams. New York: Wiley, 1949. 490 pp. Price, $6.00.

USES OF PENICILLIN AND STREPTOMYCIN, THE. Chester Scott Keefer. Lawrence, Kan.: University of Kansas Press, 1949. Price, $2.00.

VETERANS ADMINISTRATION TECHNICAL BULLETINS. Series 10. 1946–1947. Washington: Veterans Administration, 1948.

REPORTS RECEIVED

ANNUAL REPORT OF THE DIRECTOR-GENERAL OF THE WORLD HEALTH ASSEMBLY AND TO THE UNITED NATIONS. 1948. Geneva: World Health Organization, 1949. 47 pp. Price, $.25.

CENTRAL AND NORTH FILTRATION PLANT—PROPOSED SITES. A Report to the Subcommittee on Pumping Stations and Filtration Plants of the City Council Committee on Finance. Chicago: Chicago Plan Commission, 1949. 17 pp.

CENTRAL COUNCIL FOR HEALTH EDUCATION. Annual Report 1947–1948. London: Tavistock House. 24 pp.

ENGINEERS' COUNCIL FOR PROFESSIONAL DEVELOPMENT. 16th Annual Report, 1948. New York: Engineers' Council for Professional Development. 40 pp.

GOODWILL INDUSTRIES OF AMERICA. Serving the Nation's Handicapped. Annual Report 1948. Milwaukee, Wis.: Goodwill Industries of America.

HEALTH IN WISCONSIN. Madison, Wis.: Wisconsin State Board of Health. 63 pp

INDEX TO AMERICAN SOCIETY FOR TESTING MATERIALS. December, 1948. Philadelphia: American Society for Testing Materials. 264 pp.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE. Report on the Work of the School 1947–1948. London: University of London 138 pp.

MONTREAL, CANADA. Report of the Department of Health 1947. Montreal: City Health Dept. 243 pp.

NEW BRUNSWICK, CANADA. 31st Annual Report of the Chief Medical Officer to the Minister of Health and Social Services, 1948 New Brunswick: Dept. of Health and Social Services. 1949. 169 pp.

NEW MEXICO HEALTH OFFICER. Annual Report 1946. Santa Fe. State Department of Public Health, 1948.

RECOMMENDED QUALIFICATION REQUIREMENTS AND MINIMUM SALARIES FOR PUBLIC HEALTH PERSONNEL IN CANADA. Toronto: Canadian Public Health Assn., 1949. 32 pp.

SCHOOL OF TROPICAL MEDICINE OF THE UNIVERSITY OF PUERTO RICO, THE. Report of the Director, 1947. New York: Columbia University Press. 107 pp.

TEN YEARS OF FEDERAL GRANTS-IN-AID FOR PUBLIC HEALTH 1936–1946. Joseph W. Mountin, Emily K. Hankle, and Georgie B. Druzina. Washington: Supt. of Documents. 77 pp. Price, $ 25.

TEXAS CITY EXPLOSION. April 16, 1947. Washington: The American National Red Cross. 43 pp.

WHY DO PATIENTS IN TUBERCULOSIS HOSPITALS LEAVE AGAINST MEDICAL ADVICE? A Study by Godias J. Drolet and Donald E. Porter. New York: New York Tuberculosis and Health Assn., 1949. 66 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Most Important Cause of Death—Epidemiologic research into accident causes, and adopting remedial measures against accidents are public health responsibilities. The basis for this broad assertion will be found in these six solid papers. Read them all.

ARMSTRONG, D. B., *et al.* Accident Prevention. Pub. Health Rep. 64, 12:355 (Mar. 25), 1949.

From a World-Wide Viewpoint—Causes of disease are not solely physical or biological: they are sociological too.

Though modern, scientific medicine is 150 years old, it is only in the last fifty that this conception has begun to get a foothold. You'll like this excellent presentation of the idea.

CHISHOLM, B. Social Medicine. Scient. American 180, 4:11 (Apr.), 1949.

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Public Health in Foreign Periodicals

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AS a result of post-war developments, Turkey has come to occupy a position of considerable significance in the foreign policy of the United States. Despite this important fact, however, most Americans know little or nothing about Turkey. For this reason it may be of interest to review briefly recent Turkish activities in public health.

To understand its current problems, Turkish public health must be viewed in historical perspective. The Ottoman Empire had left the care of the public health largely to religious and other voluntary organizations. Little impression was made on the disease-ridden parts of Anatolia. The dissolution of the Ottoman Empire left a clear field for the creation of a public health organization on modern lines. When the national government was formed in Anatolia, a Ministry of Health and Social Welfare was created (1920). A campaign, almost on military lines, was organized to attack problems of disease. Since then efforts have been made to combat malaria, tuberculosis, syphilis, trachoma, and other communicable diseases rife in the villages. Special campaigns were undertaken to reduce infant mortality. As the peasants form an overwhelming proportion of the total population, rural hygiene occupies an important place in the Turkish public health program. On the whole, during the first two decades of its existence, the Turkish Republic had developed a basic health organization capable of expansion in the various branches of modern public health work.[1]

TEN YEAR HEALTH PLAN FOR TURKEY

As in so many other countries, the war interrupted these activities. In 1946, however, the government again brought the problem of public health into the foreground of public attention. A Ten Year Health Plan was prepared by the

Ministry of Health and Social Welfare and was approved by the High Council of Health after consideration in November, 1946.[2] The aims of this plan are: (1) to further and to extend the scope of preventive medicine in Turkey; (2) to provide medical facilities for the rural population; (3) to increase the present public health force and to train new personnel in modern methods; (4) to improve existing hospitals and other health institutions and to bring them up to the best modern standards; (5) to establish and to operate in seven zones or regions of the country new health institutions which will provide needed medical and social services for those areas and will form nuclei for future medical schools; and finally (6) to set up a national organization for health insurance to give practical effect to these principles.

CAMPAIGN AGAINST TUBERCULOSIS

Certain aspects of this plan have been put into operation more rapidly than others. Thus, particular attention is being paid to the control of tuberculosis. The Turkish Government sent three medical bacteriologists to Denmark to study the use of BCG in tuberculosis control.[3] As a result BCG vaccination is to be applied to new-borns and to school children. At the same time the Ministry of Health is increasing the number of beds for tuberculosis patients. In 1947, 406 beds were added and 308 more were to be added in 1948. After the completion of the National Health Plan the number of beds, which was 1,041 in 1946, should have reached a total of 5,570.[4]

In addition, considerable efforts have been made to enlist citizen participation in tuberculosis control work. The first Turkish tuberculosis association was established in Izmir in 1923, and was soon followed by those of Istanbul and a few other provinces. At the beginning of 1947 the Turkish Government organized a Tuberculosis Week. This action stimulated or brought to a focus interest in the tuberculosis problem. Within a short time the number of local tuberculosis organizations rose to 53. Early in 1948, during the second Turkish Tuberculosis Week, these associations met in Istanbul and decided to establish a National Tuberculosis Association with headquarters in Ankara. The National Association plans to undertake mass tuberculosis surveys and to assist in the application of the BCG vaccine.[5]

There is also considerable interest in public health circles in the newer methods of treating tuberculosis, particularly in the use of streptomycin.[6]

OTHER COMMUNICABLE DISEASES

Communicable diseases that are likely to break out in epidemic form have always been a problem in Turkey, and owing to the poor hygienic conditions under which a considerable segment of the population lives these still occupy a prominent place in the public health program. Typhus fever, for example, has been widespread, often in epidemic form. Though Turkey did not take an active part in World War II, an epidemic of typhus fever broke out in 1942.[7] This outbreak reached its peak about the middle of 1943. The number of cases remained approximately the same until the first half of 1945, and did not return to the pre-war level until 1947. In 1943 there were 4,142 cases while in 1947 there were 641. Most of the cases appeared during the first half of the year, especially in March. The measures taken to combat the epidemic were mass vaccination, energetic application of DDT, and requirement of early reporting of cases.

Payzin and Akyay report on a vaccine employed during a pertussis epidemic in 1948.[8] In the course of this outbreak several strains of *Hemophilus pertussis* were isolated, and a new pertussis vaccine was produced. It is reported that

the vaccine was prepared according to the method of Kendrick and Eldering, using desiccated cultures. The product was tested according to methods employed by the U. S. National Institute of Health. The vaccine was used both for prevention and treatment, and is said to have given very satisfactory results. A group of 290 children who acquired the disease were vaccinated. Of this group, 80 per cent are reported to have responded favorably, that is, the course of the disease was shortened and the interval between coughing spells was increased.

Brucellosis is another problem of concern to Turkish public health workers. Efforts to establish the prevalence of the disease and to control it have only recently been started. In Turkey, *Brucella melitensis* is reported to be the chief etiologic agent. *B. suis* is said to be absent. The diagnosis is generally made in the laboratory by means of an agglutination test. Bilal points out, however, that for a long time each Turkish laboratory had its own method and employed its own diagnostic criteria. This situation caused a great deal of confusion, and in 1943 it was decided to establish a standard agglutination test for Turkey. The method of Stableforth was ultimately proposed. A skin test has also been developed.

In 1948, S. Payzin and S. B. Golem showed that Q fever is endemic in Turkey. Various strains of *Rickettsia burneti* have been isolated in different sections of the country. It is now known that the Balkan grippe which occurred during the war was due to an agent which Caminopétros showed to be identical with *R. burneti*. Payzin has recently reported an outbreak of Q fever in an Anatolian village.[10]

From time to time there have been outbreaks of plague in Turkey. On March 15, 1947, 3 cases of bubonic plague were reported in Akçakale.[11] Within twenty-five days the number of cases increased from 3 to 19. Most of the cases were of the axillary bubonic type and 5 were septicemic. No pneumonic plague was seen. It is also reported that DDT was used as an insecticide in a 6 per cent solution in oil.

Malaria is highly endemic in Turkey and is closely related to its physical geography and particularly its climate.[12] The disease is not very prevalent on the central Anatolian plateau, but the incidence of malaria is very heavy in the coastal region. All types of malaria are present in Turkey. Spring epidemics are caused by the tertian form in almost all areas. *Vivax* paroxysms predominate in July and August, *falciparum* from the end of August to October. Depending on the locality and the season, sometimes the benign tertian form predominates and sometimes the malignant tertian form. The quartan form is encountered in various parts of the country. The chief malaria vectors in Turkey are *Anopheles maculipennis, A. elutus* and *A. superpictus. A. bifurcatus* is also reported from southern Turkey.

The Turkish Government has devoted special attention to antimalarial work. Shortages arising from the recent war compelled a temporary curtailment of the control program. In 1945, however, the Ministry of Health and Social Welfare embarked upon an Extraordinary Malaria Control Program. The number of provinces in which control activities were carried on was raised from 33 to 53 and the total of malaria control districts was increased from 18 to 32.[13]

HEALTH CENTERS FOR TURKEY

An interesting aspect of the Turkish public health program is the proposed system of health centers.[14] In its effort to place greater emphasis on preventive medicine it is planned to open health centers at a rate of one for every forty villages.[15] The health center program

will be concerned chiefly with maternal and child health, personal hygiene, prevention of communicable and epidemic disease, school health, social hygiene, narcotic control, sanitary engineering, and health education. Each health center will be expected to have medical and social records for the persons and families in the district and to follow up any condition requiring attention. Home visits will be made by visiting nurses and midwives. It is expected that when these centers are fully established it should be possible to carry out through them the campaigns against malaria, trachoma, hookworm disease, and other health problems of social concern. It is also expected that the medical and ancillary personnel will reside near the centers, so that the plans include provisions for living quarters. Public baths will also be constructed near the health centers

It is realized that a plan of this kind requires an increase in personnel. Consequently, the Ministry of Health has decided to have 100 young doctors trained annually for public health work at the School of Hygiene in Ankara. The best of these physicians will be sent to the United States for further training.

Similarly, to provide enough public health nurses seven training schools for nurses will be opened in different parts of Turkey. Other ancillary personnel is expected to be recruited from the school for sanitarians at Istanbul and from among those taking special courses in the villages.

Of interest also is the considerable emphasis on health education. For this purpose so-called health museums are to be provided These will really be centers from which health education programs will be carried out It will be worth watching this ambitious program and to observe its progress.

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ADDENDUM

Our attention has been called to the fact that the two volumes—*Fiat Review of German Science 1939–1946, Bacteriology and Immunology*, and *Hygiene Part I. General Hygiene*—which were reviewed in this *Journal* in December, 1948 (pp. 1702–1703), are not available through military government channels These volumes are now available under the title *Naturforschung und Medizin in Deutschland 1939–1946* through the firm of Stechert-Hafner, Inc, 31 East 10 Street. New York City. Further information concerning these volumes may be obtained from this source.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

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Gustav Engler, M.D., Almirante, Panama, Medical Supt., United Fruit Company. Panama Division

Victor J. Freeman, M.D., Univ. of Washington School of Medicine, Seattle 5, Wash., Instructor

Joseph B. Goldsmith, Ph.D., Oklahoma Univ. School of Medicine, 801 N.E. 13th, Oklahoma City 4, Okla., Professor of Preventive Medicine and Public Health

Carl C. Kuehn, M.D., M.P.H., 1098 W. Michigan, Indianapolis, Ind., Director, Division of Venereal Disease Control, State Board of Health

William Lester, Jr., M.D., Univ. of Chicago, Dept. of Medicine, Chicago 37, Ill., Asst. Professor

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Frank G. Hiesser, D.D.S., 409 Seventh St., Safford, Ariz., General Dental Practitioner

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Stephen M. Lyons, D.D.S., 382 Springfield Ave., Summit, N. J., Private Practice

F. A. Pierson, D.D.S., 112 Federal Securities Bldg., Lincoln, Neb., Secy., Nebraska State Dental Assn.

Dale M. Wampler, D.D.S., 1901 Derry St., Harrisburg, Pa., State Treasurer of Pennsylvania State Dental Society

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Victor D. Bjork, Hadley Memorial Hospital, Hays, Kans., Administrator

Eveline M. Burns, Ph.D., 122 E. 22nd St., Columbia Univ., New York, N. Y., Professor of Social Security, New York School of Social Work

Roy C. Crosby, M.D., 30 Bennet St., Boston, Mass., Asst. Director, Bingham Assn. Fund, Northeast Medical Center, Medical Care Program

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Community Hospital, Kingsport, Tenn., Director

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Joseph E. Martin, Jr., M.D., Golden Clinic, Elkins, W. Va., Chief of Medicine, Golden Clinic, Memorial General Hospital

Harry J. Mohler, 1755 S. Grand St., St. Louis 4, Mo., President, Missouri Pacific Hospital Assn.

Robert A. Molgren, M.H.A., 720 West Central, El Dorado, Kans., Administrator, Allen Memorial Hospital

Robert J. Neville, M.D., 120 Broadway, New York, N. Y., Director of Orthopedic Services, National Foundation for Infantile Paralysis

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G. Canby Robinson, M.D., LL.D., Sc.D., 900 St. Paul St., Baltimore 2, Md., Exec. Secy., Maryland Tuberculosis Assn.

George Simon, M.D., 156 W. 86th St., New York, N. Y., Physician

Col. Bryon L. Steger, M.C., 3220 Harford Rd., Baltimore 18, Md., Administrative Asst., The Johns Hopkins Hospital

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Donald H. Robinson, M.D., Box MM, Cristobal, Canal Zone, Director, Branch Medical Clinic, Colon, Canal Zone

Emily B. Sheldon, 88 Park St., Rutland, Vt., Director of Medical Social Services, Vermont Assn. for the Crippled, Inc.

Sidney J. Shipman, M.D., 490 Post St., San Francisco, Calif., Clinical Professor of Medicine, Univ. of California, Medical School

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

	Rooms with Bath	
Hotels	*Singles*	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	3.50–10.00	8.00–14.00
Statler	4.50– 7.50	7.00–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

*The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949

(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
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RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Public Health Nurses for a well established, generalized program, including school health, in a partly rural California county with a population of about 65,000. Present salaries: Junior grade, $2,640–$3,216; Senior grade, $2,916–$3,540. Probable general increase soon. Car needed; travel allowance 6¢ per mile; vacation, sick leave, all legal holidays, 38 hour week, merit system being established. Write: Health Officer, Box 360, San Luis Obispo, Calif.

Public Health Nurses with Certificate. Salary range $250–$290 per month according to educational qualifications and years' experience. Forty hour week; generalized program; opportunity for advancement. Position of educational director and assistant supervisor open. Write: J. B. Eason, M.D., Director, City Health Dept., Spokane, Wash.

Public Health Educator I (Lecturer in Social Hygiene); Salary $270–$325 monthly; female, 25 to 40; teacher training and experience in the field of teaching or college graduation and one year experience in public health education. Write: Henry A. Kjentvet, Personnel Officer, State Board of Health, Madison 2, Wis.

Public Health Laboratory Technician—degree, experience required, for County Laboratory serving 200,000 population; civil service, vacation, sick leave; salary $273–$341 monthly. Write: Dr. William F. Stein, County Health Officer, Rm. 203, Court House, Fresno, Calif.

Executive Director for voluntary nursing agency in midwestern city. B.S. degree and experience as educational director and supervisor essential. Generalized program. Students accepted for field experience. Salary open. Write **Box A-62**, Employment Service, A.P.H.A.

Director for V.N.A., challenging opportunity to organize general nursing service; urban and rural; 40 hour week; liberal annual and sick leave; travel allowance, car essential. Starting salary: $3,600–$4,000; one hour from New York City. Write: Mrs. G. W. Clarvoe, Somerset Valley V.N.A., 97 E. Spring St., Somerville, N. J.

Bacteriologist to teach public health bacteriology course for physicians working toward M.P.H. degree in southern medical school. Background of formal education and practical experience in public health bacteriology required to *qualify for position as assistant professor.* Opportunity for research. Salary to be arranged. Write **Box A-61**, Employment Service, A.P.H.A.

Qualified Supervising Public Health Nurse for rural area on coast of Northern California. Generalized program; county population 60,000; state retirement plan; staff of six public health nurses; car furnished; starting salary $4,080. Write: Director, Humboldt County Dept. of Public Health, 805 Sixth St., Eureka, Calif.

Public Health Dentist wanted to head up program of public health dental health education in small suburb adjacent to Chicago. Specific graduate training in public health unnecessary. Salary open. Write: **Box A-63**, Employment Service, A.P.H.A.

Medical Social Consultant for city and county health department. Newly created position offering interesting experience in developing a program. Required degree in medical social work and minimum of three years' experience in discharge planning. Write: Personnel Office, City and County Bldg., Denver, Colo.

Qualified Public Health Nurse for rural area on coast of Northern California. Generalized program. Population 60,000, state retirement plan; car furnished; starting salary $3,200. Write: Director, Humboldt County, Dept. of Public Health, 805 Sixth St., Eureka, Calif.

Physician as Director — City-County Health Department. Population 50,000; staff of 9; salary for man with degree in public health $8,500 plus mileage. For further information write: Tuscarawas County General Health District, 210 West High Avenue, New Philadelphia, Ohio.

Public Health Physicians as Assistant

Chiefs in the Divisions of Communicable Diseases, Venereal Disease Control, and Local Health Administration. Civil Service; good retirement plan. Write: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Director, Industrial Hygiene, Public Health Physician at $7,500 per year; responsibilities include conferences with labor, industry, medical profession, etc., conducting industrial studies concerning health and safety standards, sanitation, first aid and medical services. Staff includes three engineers, two nurses, one chemist, and office personnel. Write: Henry A. Kjentvet, Personnel Officer, State Board of Health, Madison 2, Wis.

Medical Health Officer, public health training and experience to develop new health department. Population 38,000, 90 miles to St. Louis. Position open January 1, 1950. Write H. W. Willis, D.D.S., President, Jackson County Board of Health, Murphysboro, Ill.

Senior Public Health Nurse openings in one nurse services, some on itinerant basis. Starting salary $4,620–$5,313, depending on area to which assigned; annual increase of $180. Public Health training, minimum 2 years' supervised experience in generalized program and excellent references required. Thirty working days' annual leave, 2 weeks' sick leave, workmen's compensation and retirement plan. Write: Alaska Dept. of Health, Juneau, Alaska.

Public Health Nursing Supervisor: Beginning salary $4,980–$6,072. Public Health training, undergraduate degree, supervisory experience in generalized program and excellent references required. Leaves and other benefits as outlined for Senior Nurses above. Write: Alaska Department of Health, Juneau, Alaska.

Public Health Nurse for generalized program. Qualify for public health certificate and state registration. Salary range $250–$330. Mileage for own car. Retirement system, vacation, and sick leave. Write: Orange County Health Dept., Santa Ana, Calif.

Physician—young medical man for staff position, long established tuberculosis sanatorium in Adirondacks. Approved residency, good salary and housing for physician and family. Write **Box A-64,** Employment Service, A.P.H.A.

Announcement

The West Virginia State Health Department will accept applications for the following positions to be filled July 1, 1949:

1. **Medical positions at State Level**
   Deputy Health Commissioner
   Director, Cancer Control
   Director, Communicable Disease Control
   Director, Industrial Hygiene
   Director, Tuberculosis Control
   Director, Venereal Disease Control
   Director of Hospitals
   Director of Mental Hygiene
   Must be eligible for West Virginia Medical License. Salary range is $7,200–$9,600.
2. **Local Health Officers**
   Minimum requirements: Graduation from Grade A Medical School. At least one quarter graduate study in public health in a recognized school of public health. Two years' full-time administrative experience in public health. Eligible for medical license in West Virginia. Salary range: $7,200–$9,600.
3. **Nursing Positions**
   Registered Graduate Nurse—no formal public health nursing education or experience required. Salary range $2,400–$2,640.
   Public Health Nurse—Class B—completion of one semester's or two quarters' work in public health nursing in an approved program. Salary range $2,520–$3,000.
   Public Health Nurse—Class A—completion of one year's approved program of study in Public Health Nursing. Salary range $2,760–$3,240.
   Public Health Nursing Supervisor (State Level)—completion of one year's

approved program of study in public health nursing in addition to two years' experience in a family health program under qualified supervision, and one year's experience as a generalized public health nursing supervisor. Salary range $3,360–$3,840.

4. **Engineer and sanitarian positions**

Sanitarian—minimum requirements—college graduation, salary range $2,640–$3,120.

Junior Engineer—graduation from an accredited four year college with a major in Engineering, salary $2,880–$3,840.

For all above positions write: Dr. N. H. Dyer, Commissioner
W. Va. State Department of Health
Charleston 5, W. Va.

POSITIONS WANTED

Laboratory Position—B.S. degree in bacteriology; 5 years' experience; 2½ years in medical diagnostic public health bacteriology; 2½ years in clinical hospital laboratory work including all chemistries, bacteriology, and blood bank. Prefer a laboratory position in commercial industry. Write **Box L-7**, Employment Service, A.P.H.A.

Physician, M.P.H. with 11 years' experience in public health administration and epidemiology, on both state and local levels, desires public health administrative position. Now director of city-county health department. Offers paying $10,000 or more annually considered. Write **Box Ph-14**, Employment Service, A.P.H.A.

Business Administrator, Lay Administrator; age 38; married; 7 years' experience as business administrator of health department, large mid-west state, 7 years as sales analyst for large business machine company. Will consider opening with official or voluntary health agency, any location; salary consistent with past experience. Write **Box C-11**, Employment Service, A.P.H.A.

M.D., M.P.H., internist-cardiologist, eligible for Board of Internal Medicine. Public health experience includes generalized administration and organization of rheumatic fever program in official agency. Clinical experience includes hospital training, staff and Army appointments and private practice. Interested in adult hygiene, cardiac, chronic disease and rehabilitation programs, official or voluntary agency. Write **Box Ph-15**, Employment Service, A.P.H.A.

Food and Water Analyst, woman, 14 years' experience carrying increasing responsibility in food and water testing and research laboratories. Work involved principally chemical food analysis (organic and inorganic methods) and also bacteriological water examinations. Academic qualifications and degrees in chemistry. Write **Box L-8**, Employment Service, A.P.H.A.

Medical Administrator—11 years' public health administration, 15 years' hospital administration (3 years assistant medical director, The Johns Hopkins Hospital), superintendent two large hospitals, New York City, 8 years. Desires responsible administrative position. Write **Box C-12**, Employment Service, A.P.H.A.

Nutritionist: B.S. and M.S. degrees. Twelve years of varied experience in nutrition, diet-therapy and teaching. Available now. A.D.A. member. Excellent references. Write: **Box N-1**, Employment Service, A.P.H.A.

A.P.H.A. membership application blank on page XXXIII

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Health director; city-county health department, population 50,000; staff of nine; Middle West. (b) Director of student health department, eastern university. (c) Health officer to direct district of ten counties; Middle West. (d) Public health physician; newly created position; director, division of geriatrics and adult hygiene; metropolitan health department. (e) Woman physician to direct student health program; 1,000 women students and faculty members. (f) Director, student health; liberal arts college; approximately 8,000 students; well equipped hospital; duties administrative rather than clinical; Pacific Coast. (g) Professor of public health; duties include directorship, student health department, state university; Middle West. PH6-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Health educator; Master's degree desirable; New England division of national organization. (b) Sanitary engineer; state department of health; Middle West. (c) Health educator with Spanish-American background to work with special groups; West. (d) Sanitary engineer to supervise all sanitation with respect to food, water, milk, other sanitation problems; town of 100,000 near Chicago. (e) Health education coordinator; county health department; California. (f) Director, public health laboratory; Ph.D. required; $4,800–$5,400; Middle West. (g) Health educator to join faculty, university department of health; rank: instructor or assistant professor. PH6-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—Public health nurses for the following: (a) Assistant professorship, public health nursing; eastern university. (b) Directorship, school health program; public schools; Middle West. (c) To direct newly established visiting nurse association; vicinity New York City; $4,000. (d) Staff appointments; generalized program; Southern California. (e) To direct educational program, privately supported agency operating visiting nurses service; large city, Southeast. (f) To direct generalized program including school health; $4,500–$5,000; Middle Western metropolis. (g) Maternal and child health nursing consultant; Pacific Coast; $4,000. (h) Student health nurse; liberal arts college; university center. PH6-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health administrator; B.A., M.S., M.D., eastern schools; Master of Public Health, Johns Hopkins; several years, director of public health program in foreign country; 8 years, professor of preventive medicine and public health, university school of medicine; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health dentist; D.D.S., M.P.H.; past several years, public health dentist, state department of dentistry; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitarian; B.S., Civil Engineering; past 8 years, sanitary engineer, metropolitan health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.S., Health Education; will receive doctorate in Health Education this summer; since 1942, professor of health education, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nursing administrator; B.S. (Education); M.A. (Public Health Nursing); 8 years' teaching; 3 years, supervisor, generalized program; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

ASSOCIATION PROPOSES NATIONAL CONFERENCE ON MEDICAL CARE

A national conference to discuss the health and medical care problems now before the nation and to be sponsored by the major professional organizations concerned, together with a broad representation of the general public, was proposed on May 6 by the American Public Health Association.

Hugh R. Leavell, M.D., Chairman of the Executive Board of the Association and Professor of Public Health Practice at the Harvard School of Public Health, Boston, upon authorization of the Executive Board, invited the American Medical Association, the American Hospital Association, and the American Public Welfare Association to join with the A.P.H.A. in sponsoring such a conference. It was expected, according to Dr. Leavell, that other professional organizations concerned, such as the American Dental Association, the nursing organizations, and other related groups might be invited. Certainly, management, labor, farmers, and other consumer groups would be included as participants "in order to obtain the widest possible representation of constructive opinion and knowledge and to assure widespread understanding and support for any decisions reached."

According to Dr. Leavell the purpose of the conference would be to determine areas of agreement and to clarify disagreements on issues of health and medical care now facing the nation. It is proposed that the conference be held during July, 1949.

Dr. Leavell pointed out that the four major organizations which had been proposed as sponsors of this conference already have reached encouraging and substantial agreement on such matters as planning for the care of the chronically ill. "It would be highly unfortunate if controversies based on differences of opinion over a few aspects of the overall problem of the nation's health should be allowed to overshadow the many points on which these groups are in basic agreement." Dr. Leavell expressed real hope that such a conference may be useful in helping to find needed answers to problems of health and medical care.

In the view of the Executive Board of the American Public Health Association, such a proposed meeting should be kept as small as possible consistent with balanced representation, and should of course communicate to the public such information as is agreeable to all parties concerned. It is the intent of the American Public Health Association that the organizations which sponsor the gathering and other participants should be free to determine the matters of agenda and procedure, according to their mutual agreement.

MORE REGIONAL CONFERENCES ON LOCAL HEALTH UNITS

The third and fourth in a series of regional conferences on local health units under the sponsorship of the National Health Council were held in Kansas City and Omaha, April 20–22 and 25–27, respectively. Each conference was attended by about 100 persons. At the first were present selected individuals interested in local health problems from Arkansas, Kansas, Louisiana, Missouri, and Oklahoma; at the second similar delegates from Iowa, Minnesota, Nebraska, North Dakota, and South Dakota.

In addition to the 2 day program heretofore planned for such conferences, one for committee discussions and reports and one for state committee dis-

cussions and reports, an additional half day was devoted to orienting delegates in the conference procedure, particularly having a sample group discussion, and to giving state groups an opportunity to organize.

Among the new developments for these conferences was the pre-conference preparation made by all 5 of the states taking part in the Kansas City Conference. Louisiana, for example, sent its 12 delegates a kit of material including facts about parish public health budgets and expenditures in relation to other services, maps of proposed health centers, a description of a local health unit in action, and other pertinent material.

In each conference, the 5 state representatives developed separate plans for extending local health services in their states. A plan common to practically all of the participating states that came out of the conference was the organization of state health councils where they do not now exist and the development of community councils. The state groups at the conference constituted themselves a nucleus for carrying out the state programs. This was most clearly evident in the Oklahoma delegation which resolved "that this group act as a nucleus for a state health council for the purpose of assisting the State Health Department in its plan for complete coverage of the state with local health units." The Iowa group adopted an 11 point program on which to begin work at a meeting of the conference group within a month. The Nebraska group committed itself to securing a state board of health for its state. The progress of the plans outlined will be followed by the National Advisory Committee on Local Health Units and reported in its *Bulletin*.

Among the features of the Kansas City Conference was a disposition to make sure that the extension of local health services would enhance and augment the services of the private physician. Here also was given a detailed discussion of the new Missouri permissive legislation, which gets around certain difficulties of the state constitution and new charter to develop the legal framework for local health services. This program was described by Chester Starr, Director of Health Services of the Missouri Farm Bureau Federation.

At the Omaha Conference some of the developments now in progress in the Missouri Valley Development were outlined by Dr. Joseph Dean of the Regional Office of the U. S. Public Health Service. The increased water available for irrigation, the increase in population, and the development of power and industrial potential will change the economy of the area. It is thus necessary to make health plans flexible enough to meet changing conditions.

At this conference there was given a brief outline of North Dakota's attempt to begin the groundwork for local health service in spite of the inability to secure full-time medical health officers. This is through the training of administrative assistants in health education techniques who would go into local areas to organize community health services, getting the support of local practising physicians. It is hoped in this way to introduce the beginnings of local health service so that it can be extended as personnel shortages abate and North Dakota salaries are increased to a competitive level.

In the planning of the two conferences, each of the 10 state health officers was asked to select a team of about 15 persons broadly representative of both lay and professional health interest. The Kansas City Conference of 101 persons met this qualification reasonably well. The 5 state teams included from 12 to 21 persons, the largest number coming from the host state, Missouri.

The Omaha Conference (because of a number of factors) was less represent-

ative either as to numbers or variety of interest. North Dakota, with the smallest population represented and the most remote from the seat of the conference, had only 2 representatives, both staff members of the State Health Department. On the other hand, 48 Nebraskans registered for the conference, the majority of them professional workers.

Thomas D. Dublin, M.D., Director of the National Health Council, presided at the meeting; Haven Emerson, M.D., gave the background address and summarized the Kansas City Conference; Roscoe P. Kandle, M.D., Field Director, American Public Health Association, gave the background address; and William R. Willard, M.D., Associate Professor of Public Health, Yale School of Medicine, summarized the Omaha Conference; John W. Ferree, M.D., and S. S. Lifson of the American Heart Association were in charge of plenary session discussions. Discussion leaders and recorders were selected from the state teams.

The following member agencies of the National Health Council had representatives at one or both conferences:

American Cancer Society, American Heart Association, American Medical Association, American Nurses' Association, American Public Health Association, American Red Cross, National Foundation for Infantile Paralysis, National Organization for Public Health Nursing, and the National Safety Council.

Detailed proceedings of the conferences are being published by the National Health Council and will be available for limited distribution.

KNUDSEN MEDAL TO DR. ROBERT A. KEHOE

At the April meeting of the American Association of Industrial Physicians and Surgeons in Detroit, Mich., the William S. Knudsen Medal was presented to Robert A. Kehoe, M.D., of the University of Cincinnati, for his work in the detection and control of lead poisoning.

The Health Achievement in Industry Award was presented to the Rome Cable Corporation of Rome, N. Y., for its recently inaugurated medical department for employees.

COLORADO REPORTS ANIMAL DISEASES

The Colorado State Department of Public Health has instituted a program of reporting animal diseases that are transmissible to human beings. Each veterinarian furnishes reports on forms designed for this purpose. Additional information may be obtained from Martin D. Baum, D.V.M., Director, Veterinary Public Health Services, State Office Building, Denver 2.

DR. HAVEN EMERSON SPEAKS ON PREVENTION OF BLINDNESS

Haven Emerson, M.D., was the principal speaker on April 27 at the annual meeting of the Maryland Society for the Prevention of Blindness in Baltimore. In discussing the relationship of voluntary and official health agencies in the program of sight conservation, he emphasized the need for well organized local health departments for maximum effectiveness of specialized sight conservation programs.

CEREBRAL PALSY RESEARCH UNIT BEGUN

The establishment of a brain registry, to collect case histories of cerebral palsy and obtain for medical study the brains of deceased victims of this disease, has been announced by the American Academy for Cerebral Palsy. These procedures will add considerably, it is believed, to present medical knowledge of cerebral palsy.

KENTUCKY MOBILE MEDICAL CLINIC

The Jefferson County Kentucky Fiscal Court has presented to the Louis-

ville-Jefferson County Board of Health the first mobile medical clinic in Kentucky, a 30 foot trailer fully equipped as a doctor's office. Its services include examinations, immunizations, child health work, and other preventive measures which are being maintained for the residents of outlying areas of the county where regular scheduled routes will be followed. A physician, a registered nurse, and a driver compose the trailer staff. During its first month of operation, the "doctormobile" brought medical service to 400 persons.

UNION LEGAL IN WASHINGTON

The Washington State Legislature has just passed Senate Bill 25 which permits cities of over 100,000 population to establish joint health departments with their counties. This legalizes the "gentleman's agreement" cooperation already in existence between Seattle and King County and between Tacoma and Pierce County. Spokane is the one remaining city of that size not yet operating jointly with its county.

100 PER CENT IN NORTH CAROLINA

The North Carolina State Health Officer, John W. R. Norton, M.D., has announced that by July 1, 1949, every county in the state will have an organized public health department. The first of the year, 96 counties were served by 70 health departments; since then the remaining 4 counties have set up or made provisions for establishing health departments.

FIRST COUNTIES IN INDIANA VOTE CONSOLIDATION THROUGH REFERENDUM

Elkhart and Clark are the first counties in Indiana to take advantage of a 1947 referendum law by which citizens may vote to establish full-time county or multi-county health departments. The recent referendum vote in the 2 counties favored the establishment of county health departments by large majorities. In Elkhart County with a population of about 75,000, this will result in the consolidation of 4 separate jurisdictions, each currently served by a part-time health officer. Clark County's department serving about 35,000 persons will consolidate two current jurisdictions with part-time health officers.

With the establishment, by resolution, of a full-time department in Kosciusko County in January, there are now 9 full-time local health departments in the state serving about 30 per cent of the population.

KANSAS'S FIRST MULTI-COUNTY UNIT

The commissioners of two Kansas counties, Butler and Greenwood, recently approved consolidations of the health services of the two counties with costs to each based on a per capita ratio of the two counties' populations. The new consolidated unit will serve a population of nearly 50,000 and will be the first multi-county unit in Kansas.

H. W. Lane, M.D., present Health Officer of Butler County, will direct the consolidated unit with headquarters at El Dorado. A subcenter will be located in Eureka of Greenwood County.

DR. W. W. FRYE BECOMES DEAN AT L. S. U. SCHOOL OF MEDICINE

The appointment of William W. Frye, M.D., Ph.D., who has been Assistant Dean at Tulane University School of Medicine and Director of the Division of Graduate Medicine, to become Dean of the Medical School at Louisiana State University, New Orleans, was recently announced to become effective as of May 1.

Dr. Frye received a Ph.D. degree at Ohio State University in 1931. He later completed the medical course at Vanderbilt University, where he was later Chairman of the Department of Preventive Medicine and Public Health. He moved to Tulane University in July,

1948, and continued his teaching and research in tropical medicine. Dr. Frye is a member of the Committee on Research and Standards of the A.P.H.A.

WASHINGTON AWARD TO JOHN L. SAVAGE

John L. Savage was recently awarded the 1949 Washington Award "for his unselfish public service devoted to the creation of monumental hydraulic structures utilizing natural resources." The Washington Award is made annually by a joint committee of the American Society of Civil Engineers, American Society of Electrical Engineers, American Society of Mining and Metallurgical Engineers, and the Western Society of Engineers.

In addition to Mr. Savage's important role in the design of many of the important United States hydraulic installations, he also designed the Yangtze River dam project in China.

A. M. A. BUREAU DIRECTOR IN GERMANY

Dr. W. W. Bauer, Chicago, Director of the American Medical Association Bureau of Health Education, sailed for Germany March 22, 1949, to consult with U. S. Military Government officials and with the German medical profession about the rehabilitation of postwar German medicine, especially with relation to public health and health education. Dr. Bauer's services have been loaned by the American Medical Association to the U. S. Department of the Army. He is scheduled to serve in Germany three months, returning by way of London, where he will spend a few days observing British health and medical systems.

PUBLIC HEALTH SPECIALTY BOARD SELECTS REPRESENTATIVES

The American Board of Preventive Medicine and Public Health, Inc., at a meeting of the Trustees in Washington, D.C., on April 25, appointed representatives of the specialty board to the Advisory Council on Medical Specialty Boards. Ernest L. Stebbins, M.D., Secretary of the American Board of Preventive Medicine and Public Health, Inc., and William P. Shepard, M.D., San Francisco, Calif., were designated to represent the board on the Advisory Council.

ANOTHER COLORADO COUNTY ORGANIZED

On January 1, 1949, the Mesa County Health Department began operating from headquarters in the Grand Junction Health Center. The Director is Margaret E. N. Beaver, M. D.; George A. Prince is sanitary engineer; Grace Larson, public health nurse supervisor. Several staff members were formerly in the Grand Junction Health Department now consolidated in the new county unit.

Mesa, with a population of about 35,000, is the 21st Colorado county to have organized public health services. Housed in the department's health center are the local cancer, tuberculosis, crippled children's, infantile paralysis societies, as well as certain activities of the county medical society.

VA AREA DIRECTORS

The following six area medical directors to supervise hospitals and other VA medical matters have been appointed:

Washington, D. C.—Delmar Goode
Atlanta, Ga.—Frank B. Brewer
Boston, Mass.—Francis B. Carroll
Fort Snelling, Minn.—Einar C. Andreassen
St. Louis, Mo.—Charles H. Beasley
San Francisco, Calif.—Cyril H. C. Francis

MINNESOTA HEALTH DAYS AGAIN

Three more of Minnesota's "Health Days" have now been held. On February 22, a group representing 8 southwestern counties met at Pipestone for the second southwestern Minnesota Health Day. A new feature of this meeting was a panel discussion arranged and presented by high school students who tossed their own questions on farm and home safety to 3 adult experts.

The first Health Day in a metropolitan area was that of Minneapolis and Hennepin County's Community Health Day on March 4. This was sponsored by the Women's Auxiliary of the Hennepin County Medical Society. Among other needs it brought to light was that of full-time health services for rural areas.

The second metropolitan Health Day was held on April 21 by St. Paul and Ramsey County. This was sponsored jointly by the Women's Auxiliary of the Ramsey County Medical Society and the St. Paul Area Public Health Council made up of 54 organizations.

Sixty of Minnesota's 87 counties have now been involved in "Health Days," the technique of that state for focusing on public health needs and the organization of community health councils and multi-county health departments.

U.S.P.H.S. ANNOUNCES ESTABLISHMENT OF MENTAL HEALTH INSTITUTE

According to an announcement by Dr. Leonard A. Scheele, Surgeon General of the U.S. Public Health Service, the National Institute of Mental Research has been established under the directorship of Dr. Robert H. Felix, who for several years has been the head of the Division of Mental Hygiene in the Service. The division has now been abolished.

The responsibilities which the division administered in the Fort Worth and Lexington Hospitals for Narcotics cases are transferred to the U.S.P.H.S. Hospital Division.

While the research center is being erected in Bethesda, Md., for the Service at a cost of some $40 million, the National Institute of Mental Research will occupy offices in the south Federal Security Building, Washington.

MINNESOTA'S NEW HEALTH UNIT LAW

The recent session of the Minnesota Legislature passed a bill authorizing county and multi-county health departments, which was signed by Governor Youngdahl on April 14. Similar bills were defeated in 1945 and the 1947 legislative sessions.

The act provides for the establishment of county or multi-county health departments either by resolution of the county commissioners or by a referendum vote.

Cities of the first and second class, of which there are 6 representing about one-third of the state's population, are exempted from the provisions of the act but may elect to join the county or multi-county health department.

According to the act all other local boards of health are divested of their current powers in areas included in a county or district health jurisdiction. There is provision for a local tax levy not exceeding one mill to support local health departments.

A provision orginally in the bill but stricken out before its final passage provided for a full-time medical health officer with special training or experience in public health administration. The law, as passed, requires only that the county or district health officer "be a doctor of medicine duly licensed and registered in the state of Minnesota." His appointment by the local board is for a 5 year term.

NEW JERSEY SURVEYS ITS HEALTH

In April the New Jersey State Health Department began a five year research survey of health practices and methods in local health departments of the state. It is planned to improve evaluation methods and to evolve a set of standards of public health practice for New Jersey based on optimal health conditions. The Commissioner of Health is required by the state reorganization law of 1947 to recommend " recognized public health activities and minimum standards of performance " for local health departments to the State Public Health

Council, which in turn is required to prescribe standards.

The survey, which operates as a part of the Bureau of Local Health Services, is made possible by a grant from the Commonwealth Fund of New York. The survey team is made up of a public health physician, public health engineer, public health nurse, statistician, and clerical workers. Staff personnel of the health department serve as expert consultants. The participation of local workers and citizens in each area is a part of the plan.

MONTANA REORGANIZES STATE BOARD OF HEALTH

A bill which had the support of the Medical and Dental Associations and the Montana Health Planning Committee, as well as the Public Health League of Montana, was passed by the Legislature and has been signed by Governor John W. Bonner.

Under its provisions, a new seven member state board of health will meet July 1, 1949, to organize. The board will be composed of 3 physicians, 1 dentist, and 3 lay members, replacing the present board made up of 5 physicians, a representative of pharmacy, and a representative of food distributors.

The new law provides that the executive officer shall be appointed by the board from persons having a degree of Doctor of Medicine and successful completion of at least 1 year of graduate study in an approved school of public health, plus at least 2 years' experience in administrative practice as a full-time public health officer. In the absence of such a qualified person the board may appoint for a period of not more than 1 year a physician with at least 5 years of active practice who shall not be eligible for reappointment.

CÖOPERATION IN DISASTER HOSPITALIZATION

The American Red Cross and the American Hospital Association have a coöperative understanding on hospitalization of disaster sufferers. This understanding has been printed for permanent reference as No. 6 in a series of preparedness leaflets, and was distributed with the January-February, 1949, issue of *Disaster*. The purpose of this understanding is to develop a plan for the coördination of hospital facilities in a disaster area so that hospital facilities may be used to the best advantage for disaster sufferers.

INDIA'S FIRST CHILD WELFARE EXHIBIT

A child welfare exhibit, presenting some aspects of children's problems all over the world, began in New Delhi, India, April 18. The first of its kind in India, the exhibition was held under the auspices of the Indian National Committee of the United Nations Appeal for Children. Invitations were sent to all foreign countries and to provincial and state governments in India.

KENTUCKY PUBLIC HEALTH ASSOCIATION

The Kentucky Public Health Association was organized at a meeting held in Louisville on March 23 to 25. At this initial meeting, the registered attendance was 685. Officers of the new society are as follows:

President—J. F. Blackerby, Director, Division of Vital Statistics, State Department of Health, Louisville

President Elect—Margaret East, Director, Division of Public Health Nursing, State Department of Health, Louisville

Vice-President—Paul Modica, Supervising Sanitarian, Lexington-Fayette County Health Department, Lexington

Secretary-Treasurer—Bruce Underwood, M.D., State Health Commissioner, Louisville

REVIEW OF SOVIET MEDICINE SUSPENDS

The American Review of Soviet Medicine has suspended publication. For the past 5 years it has served to link medical workers in Soviet Russia with others in the world. In announcing the sus-

pension, its consultant editor, Dr. Henry E. Sigerist, said "much to our regret we are unable to carry on the publication for reasons which are so obvious we need not elaborate on them." The American-Soviet Medical Society, which published the *Review*, will continue in existence and will keep its members informed of medical developments in the U.S.S.R. as opportunity develops. It will also continue the society library at the New York Academy of Medicine.

KANSAS ALSO TRAINS RURAL DOCTORS

The 1949 Kansas legislature has appropriated nearly $4 million for a three-fold program of training doctors for rural areas. The plan was worked out by the Kansas Medical School and the farm organizations gave support to it in the legislature. The plan includes:

a. An expansion of the University of Kansas Medical School graduates by 20 to 25 physicians.
b. Individual communities will set up the graduates in practice at a cost of some $15,000 which the doctors will pay back in installments.
c. The Medical School has planned a series of refresher courses to keep rural doctors abreast of medical science and technical advances.

CITY PLANNING SOUTH OF THE BORDER

A Planning Program for the Capital of Costa Rica was recently published by the Pan American Union. The study was made by Anatole A. Solow, Housing and City Planning Specialist of the Union's Labor and Social Information Division, who was formerly for two years Research Associate of the A.P.H.A.'s Committee on the Hygiene of Housing. His study of San Jose was made under a coöperative arrangement between the city, Costa Rica, and the Pan American Union.

PERSONALS

E. M. BINGHAM, M.D.,† has been appointed District Health Officer of the San Joaquin Local Health District, Stockton, Calif., succeeding JOHN J. SIPPEY, M.D., deceased. He has served for 3 years as Assistant Health Officer in San Joaquin.

ALLEN D. BRANDT, Sc.D.,* head of Bethlehem Steel Company's Industrial Hygiene Department, has been elected President-Elect of the American Industrial Hygiene Association to accede to the office of President at the next annual meeting in Chicago in 1950.

J. EDGAR CASWELL,† Acting Director of the Bureau of Public Health Education, District of Columbia, was appointed Director of the bureau succeeding MELVIN P. ISAMINGER,† deceased.

COLORADO STATE DEPARTMENT OF HEALTH, CHANGES IN PERSONNEL:

ALFRED R. MASTEN, M.D.,† has rejoined the State Department as Director of the Tuberculosis Control Section after serving in a similar capacity with the Oregon State Health Department for the last 2 years.

ROBERT D. BOTTOMS is Personnel Officer in the Business Management Division, State Department of Health.

PAUL D. BRUNS, M.D., is Obstetrical Consultant in the Maternal and Child Health Section, State Department of Public Health, and staff member of the University of Colorado Medical Center.

PAUL B. CORNELY, M.D., Dr. P.H.,* Professor of Preventive Medicine and Public Health at Howard University, Washington, D.C., has recently also become Medical Director of Freedmen's Hospital connected with the Medical School.

HERBERT R. DOMKE, M.D., M.P.H.,† presently Research Fellow in Biostatistics, Harvard School of Public Health, and formerly Chief Medical Officer of the Chicago Health Department, has been appointed Commis-

sioner of Health of St. Louis County, Missouri, effective July 1. He will also serve as Assistant Professor of Preventive Medicine of Washington University School of Medicine, St. Louis.

SAIDIE ORR DUNBAR,* for 34 years Executive Secretary of the Oregon Tuberculosis and Health Association, and past president of the General Federation of Women's Clubs, received the first annual award of the Association at its recent annual banquet, for "outstanding accomplishment" in the field of public health.

GEOFFREY EDSALL, M.D.,* has been appointed Professor of Bacteriology at Boston University Medical School effective July 1. He has been Assistant Director and recently Director of the Division of Biologic Laboratories of the Massachusetts Department of Public Health.

LEROY L. FATHERREE, M.D.,* has resigned as Health Officer of Omaha, Neb., to become Health Officer of the Will County Health Department, Illinois.

FLOYD M. FELDMANN, M.D., M.P.H.,* present Medical Director, Central Coordination and Analysis Office, and Executive Secretary, Tuberculosis Study Section, U.S. Public Health Service, will join the staff of the National Tuberculosis Association in early summer as Assistant to the Managing Director, JAMES E. PERKINS, M.D.*

EDITH M. GATES,* has accepted a position as Director of Adult Health Education with the District of Columbia Tuberculosis Association, effective May 1.

W. GEORGE GOULD,† has been appointed Field Consultant, Public Health Division of the American Heart Association, to assist the Director, JOHN W. FERREE, M.D.,* in the organization of public health programs for affiliated state and local heart associations.

JAMES C. HART, M.D.† was appointed Director of the Bureau of Preventable Diseases of the Connecticut State Department of Health, effective March 1. He has been associated with that department since 1940. He succeeds EUGENE E. LAMOUREUX, M.D.,† deceased.

EUNICE GOODMAN HOLMES has been appointed nursing supervisor of West Virginia Health Districts 5 and 6, with headquarters in the Tri-County Health Department, Martinsburg.

NORVIN C. KIEFER, M.D.,† of the U.S. Public Health Service staff has been appointed Director of the Medical Division, National Security Resources Board, succeeding JAMES A. CRABTREE, M.D., Dr.P.H.,* who is currently visiting several schools of public health. Dr. Kiefer has been Chief of the Health Emergency Planning Unit, Surgeon General's Office, U.S.P.H.S.

NELSON R. KRAEMER,† former Executive Secretary of the Hudson County (N.J.) Tuberculosis League, joined the staff of the National Tuberculosis Association on March 7 as Associate Director of Seal Sale.

VERNON W. LIPPARD, M.D., has been appointed Dean of the School of Medicine, University of Virginia, Charlottesville, succeeding H. E. JORDAN, M.D., retired.

HENRY B. MAKOVER, M.D.,* has been appointed Director of Survey of the Health Insurance Plan of Greater New York, to be responsible for conducting a study and critique of the medical services provided by the group practice units associated with the plan.

THOMAS F. MCGOUGH, M.D.,* formerly Health Commissioner, Tuscarawas County Health Department, New Philadelphia, Ohio, has accepted the

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* Fellow, A.P.H.A.
† Member, A.P.H.A.

position of Health Officer of Alexandria, Va., effective May 15.

R. T. MEYER, M.D., recently public health officer with the American Military Government in Germany, has begun his duties as Health Officer of the Adams, Arapahoe, and Jefferson Counties Health District in Colorado.

HAROLD G. NELSON, M.D.,† Director of the Division of Epidemiology, Kansas State Board of Health, has resigned to enter private practice at the A. B. Smith Clinic in Stillwater, Okla.

OKLAHOMA: PUBLIC HEALTH NURSES ASSIGNED TO LOCAL HEALTH DEPARTMENTS

EVELYN WILSON BELLGINY, Payne County

ADA BOYD and WANDA J. REDPATH, Pittsburgh County

ELIZABETH M. JACOBS, Muskogee County succeeding HALLIE H. WILLIS, resigned to take a similar position in California.

EDITH DICKSON,† Comanche County.

DONALD E. PORTER,† previously assistant to the statistician GODIAS J. DROLET,* has been named secretary of the tuberculosis division of the New York Tuberculosis and Health Association to have charge of all x-ray activities of the Association in Manhattan, including industrial and community case finding surveys, and to serve also with the Tuberculosis Sanatorium Conference of Metropolitan New York.

GEOFFREY W. RAKE, M.D., Head of the Division of Microbiology, has been appointed Director of the Squibb Institute for Medical Research to succeed JAMES A. SHANNON, M.D., resigned to become Associate Director in charge of research, National Heart Institute.

JEANNETTE ROSENSTOCK,* Director of Nursing Service in the Topeka-Shawnee County Health Department, Kansas, on May 1 became Assistant Chief in Administration in the Bureau of Public Nursing, Pittsburgh, Pa.

CATHRYN C. ROTONDON, M.D., began her work as Director of the Division of Maternal and Child Health of the Kentucky State Health Department on March 14, replacing ALICE D. CHENOWETH, M.D.,* who is now with the U.S. Children's Bureau.

EDWARD M. THOMPSON, M.D.,† formerly with Lexington-Fayette County Health Department of Kentucky is now Health Officer of the DeWitt-Piatt County Health Unit in Illinois.

VIRGINIA STATE HEALTH DEPARTMENT —NEW HEALTH OFFICERS ASSIGNED TO LOCAL HEALTH DISTRICTS:

J. E. MALCOMSON, M.D., Halifax County

WILLIAM D. ANDERSON, M.D., Russell-Wise

E. D. HARDIN, M.D.,† formerly in Pittsylvania, now located in Page-Warren-Shenandoah

ALICE WATERHOUSE, M.D.,† a Health Officer in the New York City Department of Health, has been named Director of the newly created Bureau of Adult Hygiene.

WILHELMINA L. WHISNER,† has been appointed teaching supervisor in the Kanawha-Charleston Health Department, West Virginia.

Deaths

F. A. BABOUR,* Consulting Hydraulic and Sanitary Engineer, Boston, Mass. (Engineering Section).

CHARLES J. BALL,† Director, Bureau of Sanitation, New Orleans, La., Health Department (Health Officers Section).

JOE RAINEY CLEMMONS, M.D.,† former Medical Director and Executive Vice-President of Roosevelt Hospital, New York, died April 2 at the age of 52, after a long illness (Unaffiliated).

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* Fellow, A.P.H.A.
† Member, A.P.H.A.

GILBERT COTTAM, M.D.,* died March 4 at the age of 75 (Health Officers Section).

ALFRED LEE FRANKLIN, M.D., 29 year old research scientist in the Nutrition and Physiology Research Department of the Lederle Laboratories Division of American Cyanamid Company, died recently of chronic nephritis at Cedars of Lebanon Hospital, Los Angeles, Calif.

MELVIN PRICE ISAMINGER, Dr.P.H.,† died recently after a long illness. He was Director of the District of Columbia Health Department's Bureau of Public Health Information (Public Health Education Section).

GEORGE F. MANGONE, M.D.,† Health Officer, Department of Health, Union City, N. J. (Health Officers Section).

CARL E. MCCOMBS, M.D.,* died May 6 after a long illness. He retired last year as a staff-member of the Institute of Public Administration, New York (Public Health Education Section).

LEOPOLD M. ROHRA, M.D., died April 6 at the age of 62. Dr. Rohr was a medical practitioner in New York for nearly 40 years and was well known for his work for public health.

FREDERICK F. TISDALL, M.D.,† Assistant Professor of Pediatrics, University of Toronto, Canada (Maternal and Child Health Section).

CAMILLO E. VOLINI, M.D.,† Superintendent of Clinics, Municipal Tuberculosis Sanitorium, Chicago, Ill., died June 28, 1948 (Health Officers Section).

CONFERENCES AND DATES

American Association of Social Workers. Cleveland, Ohio. June 10–12.

American Congress of Physical Medicine, Netherland Plaza Hotel. Cincinnati, Ohio. September 6–10.

American Physical Therapy Association. Copley Plaza Hotel, Boston, Mass. June 19–24.

American Public Health Association—77th Annual Meeting, New York, N. Y. October 24–28.

American Society of Medical Technologists. Hotel Roanoke, Roanoke, Va. June 20–23.

American Water Works Association:
Chesapeake Section. Wardman Park Hotel, Washington, D. C. November 2–4.
New Jersey Section Outing. June 23.

Canadian Public Health Association. 37th Annual Meeting. Halifax. June 28–30.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

Connecticut Public Health Association. Hartford, Conn. June 14.

Florida Public Health Association. George Washington Hotel. West Palm Beach, Fla. October 6–8.

Health Officers and Public Health Nurses of New York State. Lake Placid, N. Y. June 20–23.

International Association of Milk and Food Sanitarians. Deschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Massachusetts Public Health Association. Amherst, Mass. June 15–17.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.

National Association of Sanitarians. Biltmore Hotel, Los Angeles, Calif. August 15–18.

National Conference of Social Work. Cleveland, Ohio. June 12–18.

National Convention of the American Red Cross. Atlantic City, N. J. June 27–30.

National Education Association. Hotel Statler, Boston, Mass. July 4–8.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y. November 7-9.

Third Inter-American Congress of Radiology. Santiago, Chile. November 11–17.

Washington State Public Health Association Spokane, Wash. September 19–20.

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Metropolitan Life Insurance Company, New York, N. Y.
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Oval Wood Dish Corp., Tupper Lake, N. Y.
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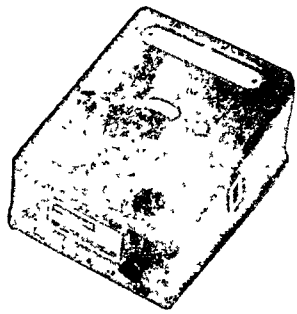
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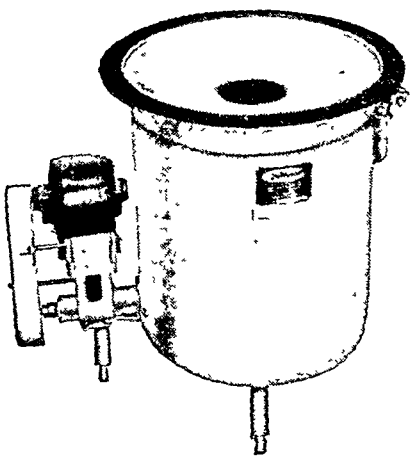
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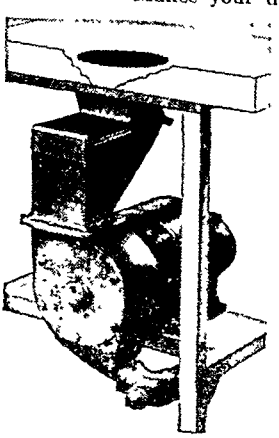
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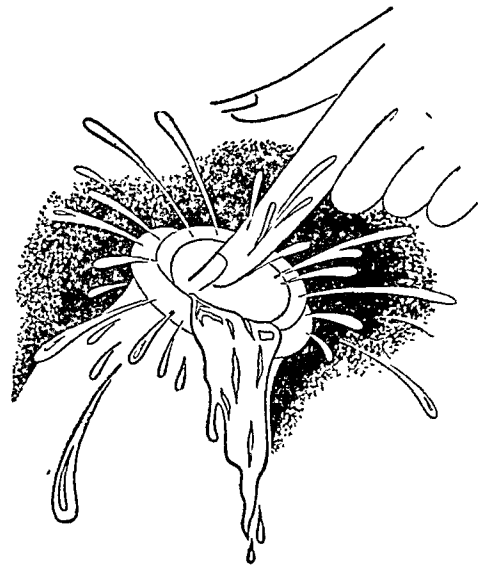
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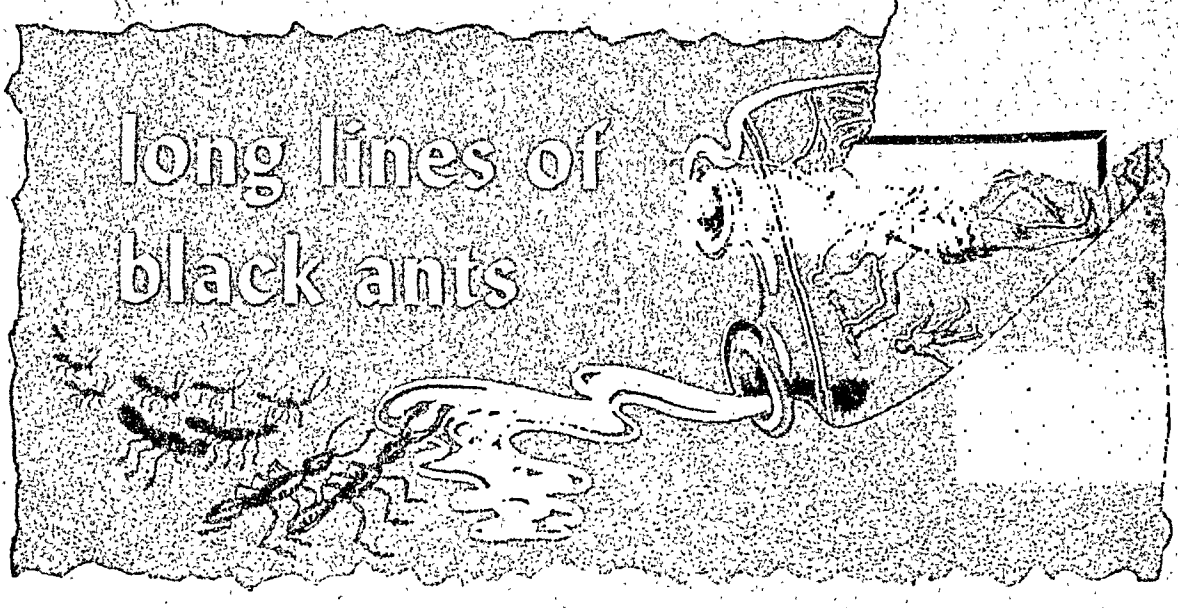
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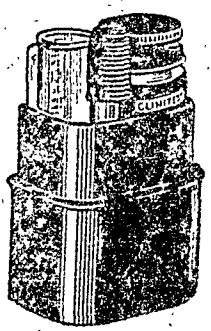
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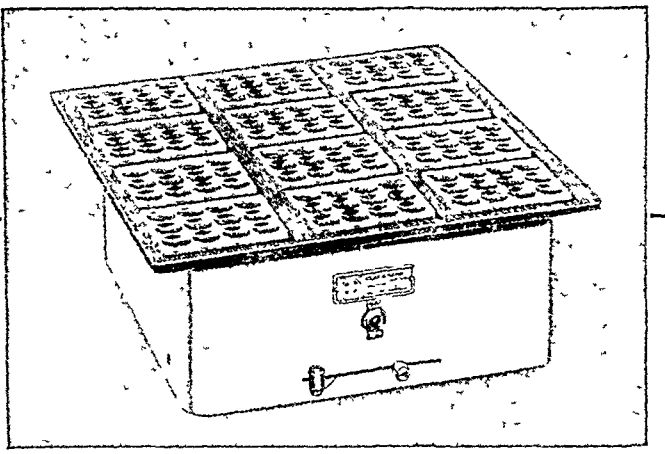
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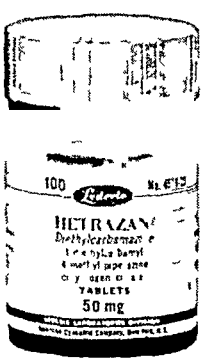
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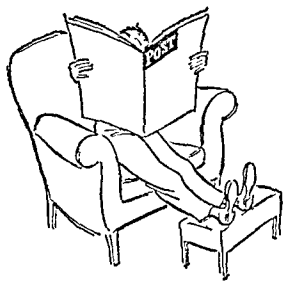
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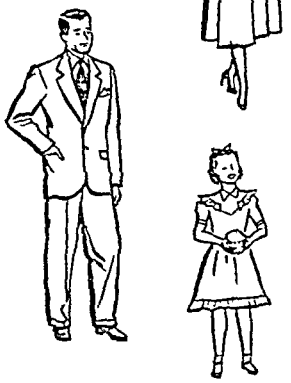
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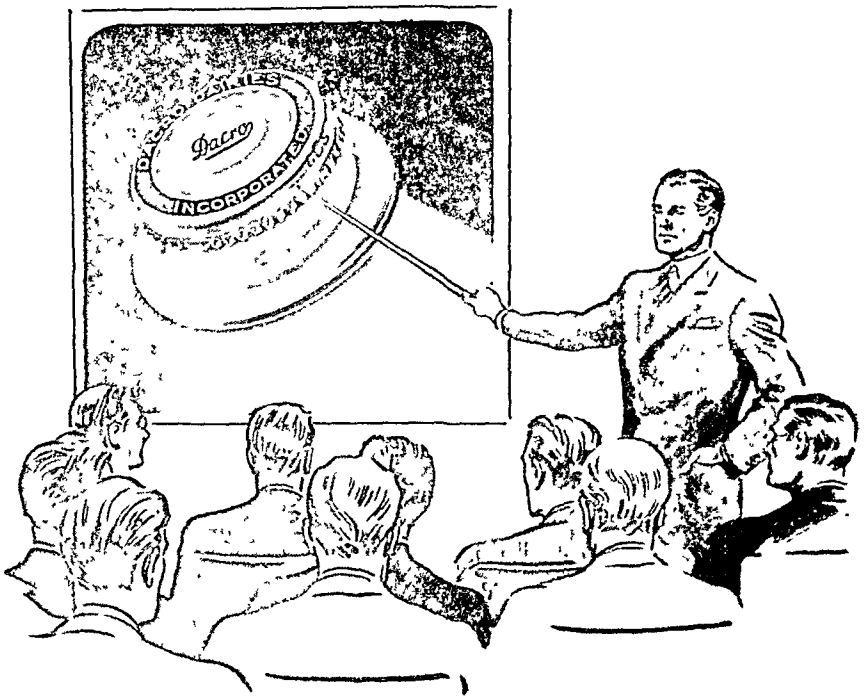
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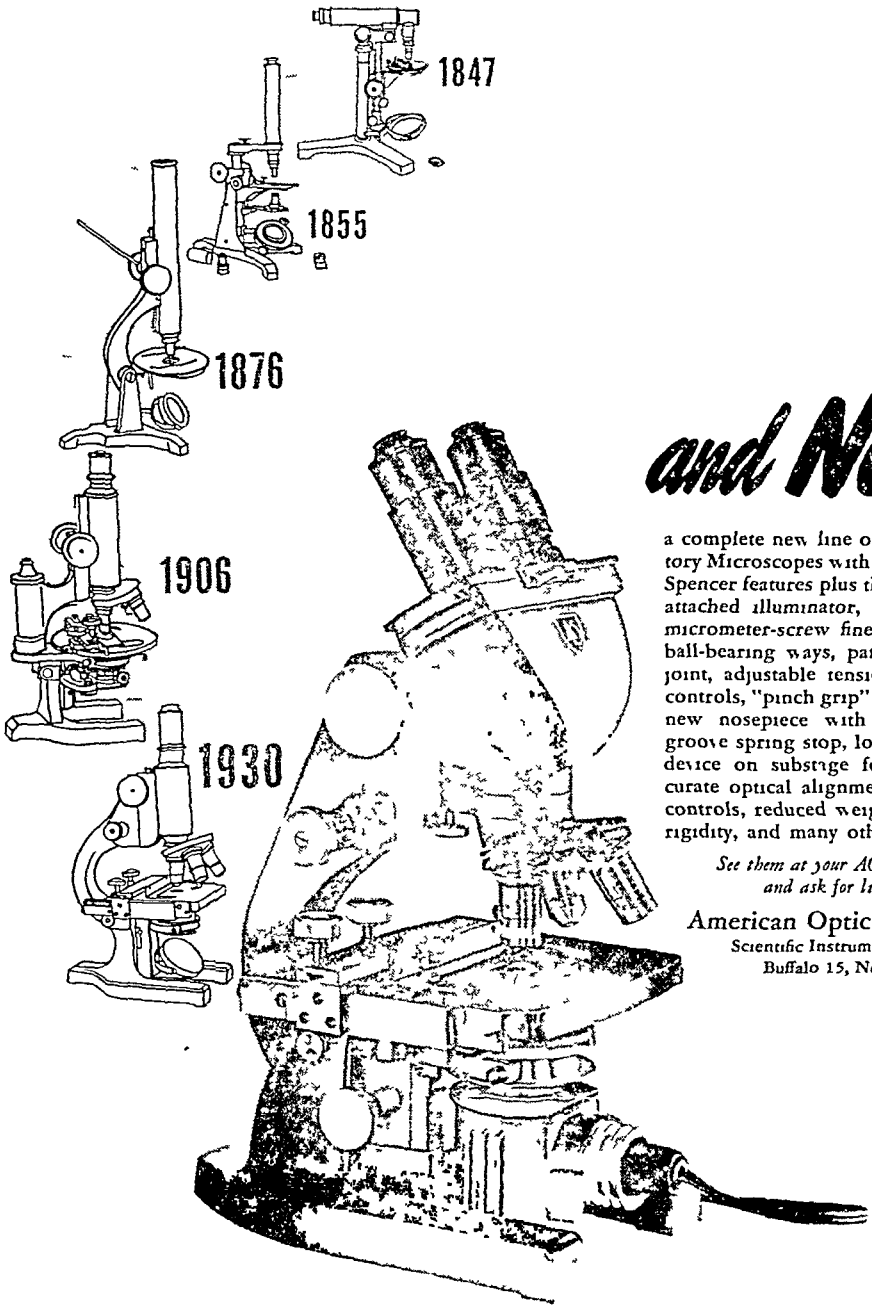
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Controlled Study
CONFIRMS IMPORTANCE OF
Morning Meal



A study* recently concluded at the Departments of Physiology and Nutrition of the college of medicine at a distinguished university established that the value of an adequate breakfast, as recommended by nutrition authorities, is definitely reflected in maximum work output and mental acuity during the pre-noon hour.

It also demonstrated that the long continued omission of breakfast detrimentally affects maximum work output, simple and choice reaction time, and neuromuscular tremor.

Under adequately controlled conditions data were collected on the effects of four different breakfast habits on the maximum work output, mental acuity, and neuromuscular tremor of six young women ranging from 22 to 27 years in age. The breakfast habits investigated constituted habituation to an 800 calorie breakfast, effects of which were considered the critical standard, to no breakfast, to coffee only (1 cup of coffee, 1 ounce of cream, no sugar), and to a 400 calorie breakfast.



*Reprint of the study referred to will be sent on request.

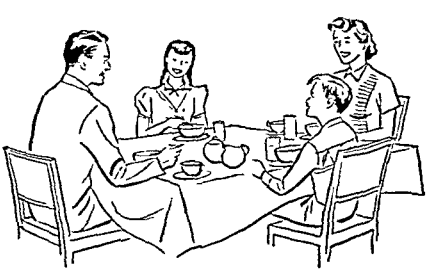


From the data gathered the following conclusions were reached:

1. When "no breakfast" was the morning habit, maximum work output showed a significant *decrease*, while a notable *increase* resulted in simple and choice reaction time and in tremor magnitude.
2. Habituation to coffee only showed a similar *decrease* in maximum work output, with corresponding *increase* in reaction time and in tremor magnitude.
3. When habituation to the 400 calorie breakfast was accomplished after the "coffee only" period, a significant *increase* over the findings in the "coffee only" period in maximum work output resulted and both simple and choice reaction time as well as muscle tremor magnitude showed a noteworthy *decrease*.

The authors point out that no direct comparison could be made of the physiologic responses during the 400 calorie and 800 calorie breakfast periods, because the breakfast period of "coffee only" occurred between the 800 calorie and 400 calorie periods.

This controlled investigation now provides experimentally established support for the widely advanced admonition "Eat an Adequate Breakfast." For, though the authors do not draw this conclusion, it may well be reasoned inversely that maximum work output should be increased, and mental acuity improved, when faulty breakfast habits are replaced by the eating of an adequate morning meal.



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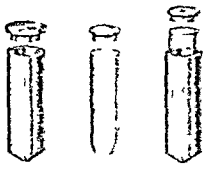
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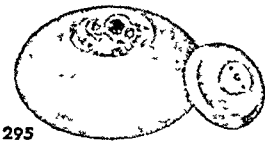
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FOR HIGH SPEED CENTRIFUGING

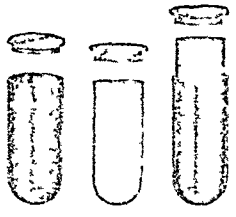
For Angle Heads on Multispeed Attachment

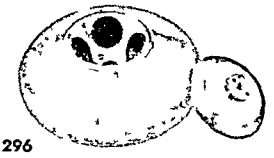
When used in conjunction with the Multispeed Attachment on the Reinforced Size 1, Type SB, Reinforced Size 2 and Model PR-1 Centrifuges, Head No. 295 swings six 10 ml. tubes at 18,000 r.p.m.; Head No. 296 swings four 25 ml. tubes at 18,000 r.p.m. At these speeds the problem of glassware breakage can be overcome by the use of Lusteroid (celluloid) tubes. As illustrated here, they are designed as inserts for aluminum or stainless steel shields which fit directly into the holes in the head. Plastic caps are available with tapered flanges which not only effectively seal the Lusteroid tubes but also prevent the tubes collapsing at the top under the high centrifugal force (25,000 x gravity).




HEAD NO. 295

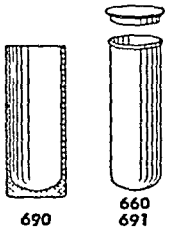
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658 Lusteroid Tube, 10 ml., for No. 300 tube. .	.10
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662 Plastic Cap for No. 664 Lusteroid tube . .	.85



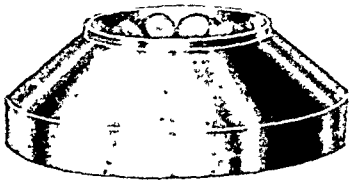

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690 Rubber Sleeve Cushion for No. 660 Lusteroid tube	2.30
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Propionic acid	2 7%
Sodium caprylate	10 0%
Zinc caprylate	5 0%
Dioctyl sodium sulfosuccinate	0 1%
Inert ingredients	69 9%
including n-Propyl Alcohol	10 0%

1 oz tubes

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Calcium propionate	15 0%
Zinc propionate	5 0%
Zinc caprylate	5 0%
Inert ingredients	75 0%

2 and 5 oz. canisters

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Sodium propionate	12 3%
Propionic acid	2 7%
Sodium caprylate	10 0%
Dioctyl sodium sulfosuccinate	0 1%
Inert ingredients	74 9%
including n-Propyl Alcohol	12 5%

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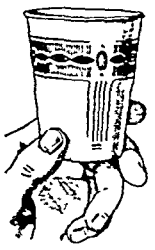
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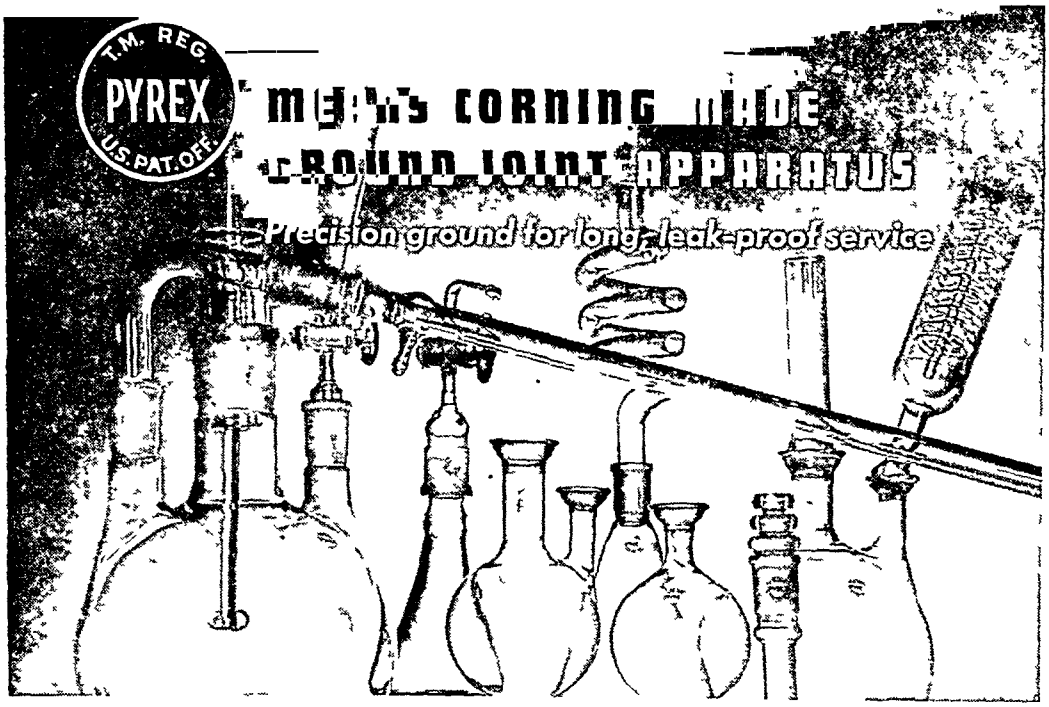
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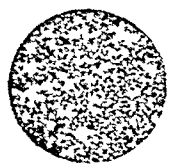
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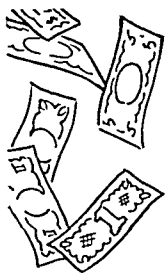
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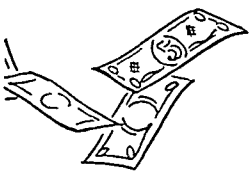
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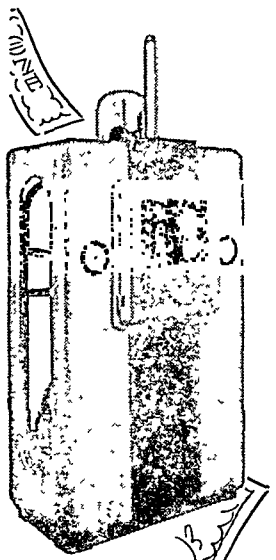
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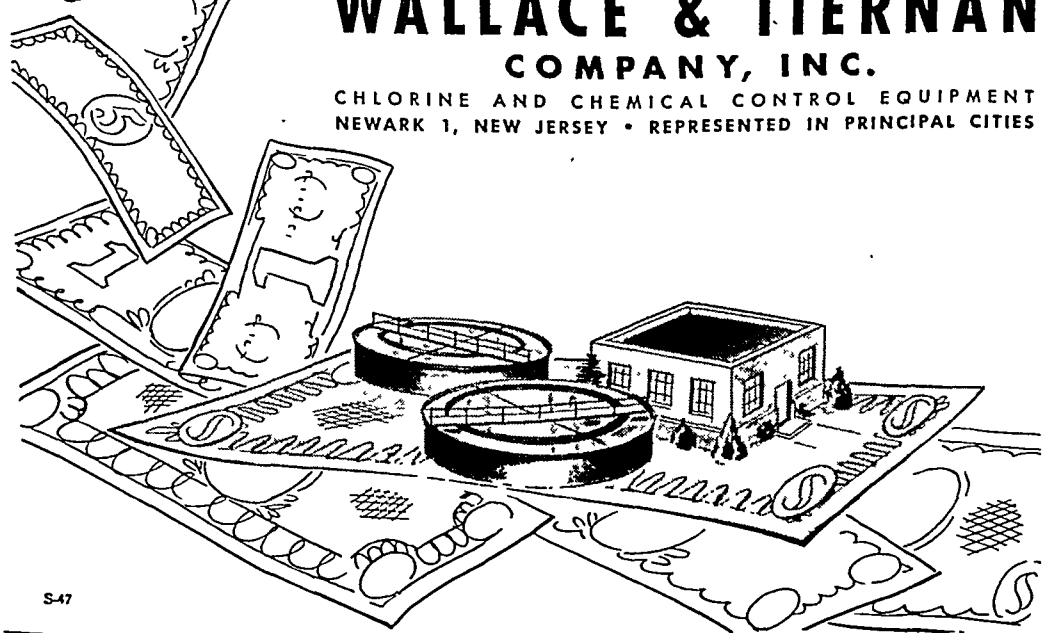
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Variation in the Hospital Care of Premature Infants*

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THE resolution on prematurity passed at the 1947 Annual Meeting and today's discussion at a joint meeting of the Health Officers and Maternal and Child Health Sections of the Association attest to the growing emphasis placed upon a public health approach to the problem of prematurity. We are leaving the hit or miss era in premature care and entering the stage of large-scale organized programs. If energy and funds are to be expended wisely in this field, critical appraisal must be made of the content of programs, existing and planned, and techniques must be developed to evaluate the results of such programs.

As a first step in this direction it is desirable to have a picture of the types of care given to premature infants in leading teaching hospitals, and to determine what effect, if any, variations in such care have upon the fate of the premature. Such knowledge is also helpful in planning additional or improved facilities for adequate care of premature infants in a given area according to accepted medical standards.

With these factors in mind a study was made of the care given to premature infants born during 1945 and 1946 in 6 teaching hospitals in New York State, 2 in New York City, and 4 elsewhere in the state. Data were obtained by statisticians directly from the hospital records of all infants weighing less than 2,500 gm. at birth covering such matters as birth weight, weight at time of transfer from one type of service to another, and on discharge from the hospital, and number of days' care given in incubators, in premature nurseries not in incubators, and in the regular new-born nursery. Lists of such infants supplied by each hospital were cross-checked with information on birth and death certificates available in the Office of Vital Statistics.

All the hospitals studied had special facilities for the care of premature infants including premature nurseries with modern incubators. The adequacy of

* Presented at a Joint Session of the Health Officers and Maternal and Child Health Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

TABLE 1

Per cent of Infants Weighing 1,750–2,499 Grams at Birth, and Surviving to Discharge, Receiving Care in Premature Nursery

Hospital	Per cent placed in premature nursery			Per cent of those placed in premature nursery receiving incubator care		
	1,750–1,999 grams	2,000–2,249 grams	2,250–2,499 grams	1,750–1,999 grams	2,000–2,249 grams	2,250–2,499 grams
Total	97	88	34	67	60	40
A	79	72	54	100	100	100
B	100	88	17	100	100	100
C	100	96	6	100	100	100
D	97	80	20	97	98	78
E	100	96	2	27	11	—
F	100	100	100	23	8	3

these facilities and the qualitative aspects of care rendered were not investigated. The data obtained can only provide a picture of actual practice in selected teaching institutions during a given period of time.

No significant variation was found in the 6 teaching hospitals in the type of care rendered to premature infants who weighed less than 1,500 gm. at birth. All infants in this birth weight group who survived the delivery room were placed in incubators in the premature nursery. In the birth weight group between 1,500 and 1,750 gm. only minor variations in care were noted. At the dividing line of 1,750 gm., deviations in the type of care became rather marked. As seen in Table 1, in 1 hospital only 79 per cent of the infants in the weight group, 1,750 to 2,000 gm. were placed in the premature nursery in contrast to the other study hospitals in which all, or nearly all, the infants were placed. Among the heavier prematures the differences in care were even sharper. In 1 hospital in New York City, all infants weighing up to 2,500 gm. received care in the premature nursery. In the other hospitals the percentage of infants placed in the premature nursery dropped off in the weight group 2,000 to 2,250 gm., and in 4 of the hospitals most of the infants in the weight group above 2,250 gm. were placed in the regular new-born nursery.

Further variation was discovered in the percentage of infants who received incubator care. In 3 of the 4 upstate study hospitals, all infants who entered the premature nursery were placed in incubators and remained there until discharge from the hospital, even though special heat and humidity controls were discontinued well before discharge. At the opposite extreme, in the hospital in New York City in which all infants less than 2,500 gm. were admitted to the premature nursery, incubator care was given to only 23 per cent of infants weighing between 1,750 and 2,000 gm., to 8 per cent in the next weight group, and to 3 per cent in the group just below 2,500 gm.

In the planning of facilities for care of premature infants it is important to have an idea of the average days of hospital care required for all premature infants, surviving or dying. In the study hospitals an average of 22 days of care is found for all premature infants (exclusive of those held for non-medical reasons) if a half day of care is arbitrarily assigned to infants dying during the first day of life. The range was 19 to 25 days. The greater part of the care was given in the premature nursery even in those hospitals in which the majority of the larger infants were placed directly in the regular nursery, since the hospital stay of the larger infants was comparatively short.

A similar analysis was made of the care rendered infants surviving to dis-

charge from the hospital as this gives a better picture of the actual care rendered. An average of 27 days of care was given to the surviving infants, with a range of 24 to 32 days in the various hospitals studied. The average number of days' care in incubators in the 2 teaching hospitals in New York City was very low since many infants were removed fairly promptly from the incubator to an unheated crib in the premature nursery.

These data were broken down further by weight, and the weight group 2,000 to 2,250 gm. is chosen to illustrate in detail the variations involved (Table 2). In the 4 upstate study hospitals about 12 per cent of the total care rendered premature infants was given in the regular new-born nursery. Of the 2 study hospitals in New York City, 1 gave no care to prematures in the regular nursery at any time, and the other gave only 1 per cent of care in the regular nursery.

Marked variation was also found in the proportion of care given in the incubator and in unheated cribs in the premature nursery. In the 2 study hospitals in New York City, 98 and 99 per cent of the total care to premature infants in the weight group 2,000–2,250 gm. was given in unheated cribs in the premature nursery as contrasted with the 3 other hospitals in which 73 to 97 per cent of care to the group was given in incubators.

The variation was also marked in the next lower weight group from 1,750 to 2,000 gm., although not so great. Extreme variations were found in the care of infants weighing between 2,250 and 2,500 gm.

Analyses of the average daily gain in weight and of the average weight at discharge at the various hospitals disclosed little information of interest. The average daily gain in weight was related in general to the length of stay of the infant in the hospital, being greater in infants who remained longer. A weight of about 2,500 gm. was apparently the criterion used in determining the time of discharge from the hospital, the range in the actual average weight at the time of discharge being 2,460 to 2,660 gm. No relationship was demonstrated between the birth weight of the infants and the weight at the time of discharge.

The neonatal case fatality rates (deaths under 1 month per 100 live births) by broad weight groups in each of the 6 study hospitals are shown in Table 3. Since mortality varies so markedly with the weight of the infant, the crude case fatality rate in any hospital is dependent to a large extent upon the distribution of the births in that hospital by birth weight. In order

TABLE 2

Total Number of Infants Weighing 2,000–2,249 Grams at Birth, and Surviving to Discharge, with Average Number of Days' Care Received in Hospital, by Type of Care

			Per cent of Care			
			In Premature Nursery			
			In Incubator and Crib			
Hospital	Total Infants	Average Number of Days' Care	Incubator	Crib	In Crib Only	In Regular Nursery
Total	334	28	45	12	34	9
A	54	32	73	—	—	27
B	40	21	92	—	—	8
C	27	28	97	—	—	3
D	81	30	56	32	1	11
E	46	33	*	11	88	1
F	86	23	3	8	90	—

* Less than 0.5 per cent

TABLE 3

Per cent Case Fatality under 1 Month of Age among Premature Infants, 1945–1946 *

Hospitals	Total		Less than 1,500 Grams	1,500–1,999 Grams	2,000–2,499 Grams	Birth Weight Not Stated	
	Crude	Adjusted				Per cent of Total Prematures	Case Fatality
All Upstate hospitals	21.3	19.6	75 5	23.0	6.5	7.5	44.1
Non-teaching	21.4	19 5	75.7	22.8	6.3	7.7	46.0
Teaching	21.1	19.8	74.1	24.4	6.7	5.9	24.8
Study hospitals							
Upstate	23.0	19.9	75.4	23.6	6.8	—	—
A	25.9	20.2	78.4	23.1	6.7		
B	23.8	21.0	72.7	24.5	8.8		
C	21.5	15.6	63.6	20.0	3.9		
D	21.0	20.9	83.0	24.2	6 5		
New York City	18.2	15.8	66.7	17.2	4.4	—	—
E	18.6	16.5	66.7	20.3	4.5		
F	17.8	15.2	66.7	14.3	4.3		

* "Crude case fatality" includes infants whose birth weight was not stated but who were of premature gestation. The adjusted case fatality excludes them.

to obtain comparable total rates for each of the study hospitals which could then be compared with the rates for other hospitals, the rates for the 6 study hospitals were adjusted to the distribution of births by birth weight in all hospitals in the upstate area in 1945–1946. This adjustment was made by calculating the number of deaths per 100 births that would have occurred had the distribution of births by weight in each hospital been the same as that among births in all upstate hospitals.

The 2 study hospitals in New York City had definitely lower rates in each of the weight groups than did the 4 upstate hospitals combined and the difference between the adjusted total rates (21 per cent) is statistically significant. When the deaths under 1 day are excluded, the difference between the rates for the study hospitals in New York City and upstate is even greater, the rate for infants 1–29 days of age in New York City study hospitals being 36 per cent lower than in the study hospitals upstate. Hospital C upstate had rates lower than any of the 3 other upstate hospitals but, since there were only 130 premature births in this hospital in the 2 years of the study period, its rates are not significantly lower than those of the group as a whole.

The hospital with the lowest adjusted rate is hospital F in New York City. This hospital has paid particular attention to the problem of prematurity for many years. In reviewing the type of care given in this hospital, it will be recalled that all infants weighing less than 2,500 gm. at birth were admitted to the special premature nursery and kept there until discharge. In this hospital more infants are placed in incubators for a day or two and are then kept in the premature nursery when the incubator is no longer considered necessary. These infants, plus the infants placed directly in unheated cribs in the premature nursery, raise the proportion of care in unheated cribs far in excess of the other study hospitals. It is of interest that hospitals C and E, the hospitals with the next lowest adjusted rates, admitted the next highest percentages of infants up to 2,250 gm. to the premature nursery. In these hospitals, only 4 per cent of the total care to infants weighing 2,000 to 2,250 gm. at birth was given in the regular newborn nursery as compared with 12, 20, and 28 per cent in the 3 hospitals having higher rates.

It should be emphasized that no conclusion is being drawn that the differences in the types of care *per se* were

responsible for the lower neonatal case fatality rates. There are many other factors at work—above all, the quality of care rendered—which were not measured. However, in pointing out the association, it would seem that the methods employed by hospitals which save a greater proportion of infants could well serve as a model unless other methods are shown to be better in some or all respects.

For the upstate area, neonatal case fatality rates by birth weight are available for all hospitals, since infant deaths are routinely matched to their corresponding birth certificates, and birth weight is obtained on over 90 per cent of all certificates. Table 3 shows the rates for all hospital births, and also for those occurring in teaching and non-teaching hospitals. While the teaching hospitals are all fairly large (none had fewer than 900 births in 1945), tabulations have shown that except for slightly higher rates in hospitals having less than 100 births a year, there is little variation in the fatality rate according to size of hospital.

The rates in each of the 3 broad weight groups are practically the same as the corresponding rates in the upstate study hospitals, the total adjusted rate for the non-teaching group being slightly lower than for the teaching group which, in turn, is slightly lower than that of the upstate study group. None of these differences are statistically significant..

Exact comparison between the study hospitals, the teaching hospitals as a group, and others, is complicated by the fact that although birth weights are reported for over 90 per cent of all births, the group of births with weight not stated includes a considerable number of infants of premature gestation. Most of these, in view of the high correlation between gestation and birth weight, would weigh less than 2,500 gm. If these children are included in the total premature group, the mortality of the group is raised. In the non-teaching hospitals in Table 3, they formed 7.7 per cent of the total premature births, with a fatality rate of 46 per cent, and in the teaching group, 5.9 per cent, with a mortality rate of 25 per cent. If it were possible to distribute these births to the proper weight group, the total adjusted rate for the non-teaching hospitals would be increased more than that for the teaching group, probably eliminating the differences between them. In the study hospitals, birth weights were obtained from the hospital records for all prematures and this alone may account for the fact that the adjusted mortality for the upstate study hospitals appears slightly higher than for the upstate teaching hospitals as a group.

In comparing the case fatality among prematures in different hospitals, or in various areas, the inclusion of these infants with birth weight not stated is as important as the adjustment of the rates for birth weight.

For the evaluation of the results of a premature program, then, certain points must be kept in mind.

1. *In comparing case fatality rates,* mortality of all premature infants, regardless of the stated cause of death, must be included. The infant mortality from "premature birth" as given by statistics of infant deaths by cause is not an adequate measure of the mortality associated with premature birth. For a state, county, or city, this means the matching of infant deaths to birth certificates and obtaining accurate birth weights on all birth certificates. Birth weight has been included on the face of the Standard Certificate to be adopted in 1949. Effort must be made to obtain complete data on birth weight since the failure of some hospitals to record the birth weights of infants who die soon after birth reduces the comparability of mortality figures for these hospitals and the areas which they serve.

2. Deaths included should be those occurring in a stated age period, for example, under 1 month of age. Hospital data are likely to include all deaths occurring in the hospital, regardless of age at death, and to exclude occasional deaths at less than 1 month of age that occur after the infant has left the hospital.

3. The births should include all those occurring at a particular place during a stated period of time. Hospitals should not include infants born outside and moved to the hospital after birth. These infants have already survived the period of greatest hazard.

4. In order to be comparable, case fatality rates should be computed by birth weight groups, or the total rates adjusted for differences in the distribution of births by birth weight.

SUMMARY

1. Marked variation was found in 6 teaching hospitals in New York State in the average number of days' care given premature infants and in the type of care given those weighing 1,750 gm. or more at birth. Some hospitals placed a considerable proportion of the larger infants in the regular new-born nursery. Only 3 of the hospitals had crib facilities other than incubators in the premature nursery.

2. The 3 hospitals which made the greatest use of special facilities for premature infants had the lowest case fatality rates. There appeared to be no association between the average number of days' care and case fatality.

3. Evaluation of premature programs necessitates the development of adequate statistics on the case fatality of all premature infants, regardless of stated cause of death. Because of the marked variation of the fatality rate with birth weight, it is essential that a rate adjusted for birth weight be used in comparing case fatality rates.

Outbreak of Yellow Fever in Panama Controlled

Dr. Miguel Bustamante, Secretary General of the Pan American Sanitary Bureau, reports that no cases of yellow fever have occurred in Panama since December 31, 1948, indicating that the results of the work performed by the health authorities of Panama, with the aid of personnel and vaccine contributed through the Pan American Sanitary Bureau, by Brazil, Colombia, and the United States, were completely successful. Dr. Adhemar Paolielo, of the Pan American Sanitary Bureau, has reported from Panama that by April 15, 1949, 315,000 persons had been vaccinated against yellow fever and that most of the dwellings throughout the country had been sprayed with DDT. The teamwork among the four countries and the international health agency for the Americas was benefited by an increased budget for public health in Panama. The people of Panama provided all possible facilities and coöperation.

The Care of Premature Infants in New York City*

HELEN WALLACE, M.D., F.A.P.H.A., AND
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THE problem of reducing the number of deaths associated with premature birth has become a matter of major concern to those interested in reducing infant mortality rates in this country. The basic problem is, of course, to increase our fundamental understanding of the causes of premature birth. But there is also the immediate problem of saving those viable infants who are born before term. Since experience has demonstrated that the lives of such babies can often be saved by proper care, an increasing number of public health officials, hospital administrators, and physicians have become interested in promoting community-wide programs for premature babies. Few reports of such activities are found in the literature and those which have appeared, have, with the exception of Chicago, dealt almost exclusively with state-wide programs.[1–5] A description of experience with the problem in another urban area would therefore seem pertinent.

Many groups in New York City have long been interested in the problems associated with prematurity. Some of the city's hospitals and medical schools have made important contributions to basic research in these problems. A city-wide committee, appointed by the Commissioner of Health, has developed desirable standards of care, kept mortality statistics, investigated hospital facilities, promoted better autopsies on the new-born. The war interrupted many of these activities, but with the EMIC program,* other activities in behalf of certain premature infants were undertaken. A study of these cases reveals some interesting material. During the war, the Department of Health also developed a hospital consultation service.

The materials herein presented attempt to answer only three of the questions usually asked by an administrator starting a so-called "premature program."

1. What is the current situation as to incidence of and mortality among prematures?
2. What are the weakest aspects of the care now given the prematurely born infant?
3. If financial assistance is to be given, what can one expect the costs to be?

MORTALITY AND MORBIDITY

Since 1939, the first year that birth weight was recorded on the birth certificate, from 7.1 to 8.3 per cent of all babies born alive have weighed less than 2,500 gm. Infant and neonatal mortality rates in New York City as else-

* Presented at a Joint Session of the Health Officers and Maternal and Child Health Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

* A study of EMIC and non-EMIC infants born in the war years is being made and will contain additional materials relating to the subject of infant care.

TABLE 1

Premature Births and Deaths under One Year of Age
(Known Birth Weight of Less than 2,500 Grams)
New York City — 1947

	Births		Deaths of Premature Infants	
Weight Group	*Number*	*Per cent of Premature Births*	*Number*	*Per cent of Premature Births*
Up to 999 grams	584	4.2	546	93.5
1,000–1,499 "	859	6.2	471	54.8
1,500–1,999 "	2,307	16.8	416	18.0
2,000–2,499 "	10,032	72.8	491	4.9
Total	13,782	100.0	1,924	14.0

where, have dropped steadily but the reduction in the neonatal rate has been slower. In 1947, the infant rate was 26.4, the neonatal 20.1.

MORTALITY AMONG PREMATURES

The mortality among live-born babies with a recorded birth weight of less than 2,500 gm. has fallen since 1945 from 17.1 to 14 per cent. Figures for 1947 * are shown in Table 1. The overall mortality was 14 per cent.

It is impossible to compare this figure with any other urban area, since apparently no other large city analyzes all its infant deaths in relation to birth weight. Most births (99.8 per cent) in New York City occur in hospitals, so it is of interest to compare these figures with those collected by Dunham[6] for the period 1940–1945 in 6 hospitals in large American cities, in which the per cent fatality ranged from 15 to 27.4. The figures for many reasons are not directly comparable, but they indicate that the mortality rates of prematurely born infants in New York City are certainly not excessive.

The extent to which prematurity looms as an important factor, however, is seen when one considers infant deaths in relation to birth weight. Thirty-eight per cent of all infant deaths in New York City today occur in infants with a recorded birth weight of less than 2,500 gm. The mortality rate in such infants is 13 times that of babies weighing more than 2,500 gm. "Prematurity" is listed as the chief cause of death in 38 per cent of all infant deaths, the cause of death being verified by an autopsy in 44 per cent of the cases. Potter and her associates[7] have indicated the need to evaluate carefully "prematurity," when it is listed as a cause of death on the death certificate and is not verified by an autopsy. Moreover, it is common knowledge that the autopsies usually performed on infants are so poorly done that one cannot rely too heavily on their results. Nevertheless, when all available facts are surveyed, it is quite clear that the deaths associated with premature births constitute the chief problem in infant mortality today.

WHAT CARE IS AVAILABLE

In planning a community program for prematurely born infants, among the first questions asked is "How good is the care now available?" Many assume that because of the existence of outstanding medical centers in large metropolitan areas, the care available to all infants is far above the usual standards. Our observations have not borne out this conclusion. For example,

* In 1947 there were 3,895 babies born in New York City whose birth weight was unknown. Length of gestation was known, and it was possible to allocate these babies by birth weight groups. As a result of this allocation, the corrected incidence of prematurity in 1947 was 8.6 per cent, and the corrected mortality per cent among prematurely born infants 16.7.

there are in New York City, 110 hospitals with maternity services. Of these, 20 could not meet the minimum standards set up under the EMIC program, and so could not be approved for payment when the plan was in operation. A survey (by the questionnaire method) of equipment provided in the 110 hospitals in 1946, showed that only 1 had an incubator and only 61 had a heated crib ready in the delivery room to receive the prematurely born infant. Moreover, no incubators at all were available in 19 maternity hospitals and 3 had no means (except hot water bottles or heat pads) of providing the additional heat needed by the premature. The preparation of formulae was such, in many hospitals, as to throw doubt on the safety of the product made.[8]

A team from the Department of Health, composed of obstetrician, pediatrician, epidemiologist, and public health nurse with special training in maternity and new-born care, has visited maternity hospitals regularly since 1944. They assist hospital personnel in analyzing weaknesses, and attempt to help hospitals improve their services. Surveys made by this team show that many hospitals use techniques which are outmoded, are wasteful of nursing time, or even encourage the spread of infection. Findings of these surveys and the progress made by providing competent consultant service in the nursing, pediatric, obstetric, and epidemiological fields have been reviewed elsewhere.[9]

Suffice it to point out that the problems found in hospitals lie in four areas:

1. Failure to carry out well established medical policies in a case suspected of having an infection, or the lack of consultations in complicated cases.
2. Lack of qualified supervision of nursing care.
3. Lack of physical equipment, such as incubators, and of facilities to cope with hemorrhage, shock, and asphyxia.
4. Failure to teach mothers about the care of themselves and their infants and to consider home conditions before discharging the baby.

It is the hospital with the small maternity service which not only gives a poor grade of care throughout its service, but is particularly unprepared to give modern care to prematurely born infants. But this situation is, perhaps, best revealed when one reviews findings in individual hospitals. Four typical cases have been selected. Of these, three are of the poorest type of hospital, for it is here that the chief problem lies.

Hospital "A," a small proprietary hospital, has designated a pediatrician in charge of the new-born nursery, but this designation is "on paper" because the pediatrician comes to the nursery only when called to see an individual baby in consultation with, and at the request of, the attending physician. He has no other responsibilities, nor can he assume any. As there are no definite policies indicating when he should be called, such requests are indeed rare. There are no established policies and procedures, no written standing orders to guide physician or nurse. Each physician orders for his own babies. The premature infants are fed with the routine house formulae prescribed for the full-term infants. On one visit to the nursery, in which the maximum capacity had been set at 20, 22 full-term and 6 premature infants were found packed in, with scarcely room for doctor or nurse to observe a baby. There had been no increase in the "nursing" staff to care for the additional 8 babies. There was no trained nursing supervisor for the nursery. Most of the nursing care was supplied by untrained staff members, practical nurses, attendants and aides who were not registered nurses, and who, it must be remembered, were working without supervision. There were, at the most, 2 so-called "nurses" and sometimes only 1, for this entire group of 22 full-term and 6 premature babies. Premature babies are fed with propped bot-

tles, and gavage tubes are passed by poorly trained personnel. The one incubator available in the nursery presumably has its temperature checked at intervals, but this information is never recorded so that no one knows what the previous temperature has been. All infants, both premature and full-term have their temperature taken "routinely" once a day, regardless of condition. Mothers are not taught how to care for the babies when they are ready to go home. No attention is paid to home conditions. Arrangements with the community nursing agency so that the premature infant would be protected in the home, if it were able to survive this type of hospital care, could have been made. Transfer of a premature infant to a hospital better able to care for it is effected only if the baby is about to die, the purpose apparently being to avoid having the death recorded as occurring in this hospital. Records on all babies, including prematures, are practically nonexistent. The record form for the infant has no space for progress notes, physical examinations, consultation notes, laboratory data. The only information available is the temperature and the weight, which are recorded every two days. No record is made of feeding, symptoms of illness, or behavior.

Hospital "B" is almost a replica of Hospital "A." On a visit to Hospital "B" a 3 pound premature infant, born 12 hours previously, was found in a private room. No physician had seen the baby since birth. A private duty nurse, an elderly woman who had just recently returned to nursing, was employed to care for the baby. Since she had not seen a premature baby in years, she was standing around the room not knowing what to do. This baby died during the visit of the Health Department's consultants to the hospital.

In Hospital "C," care of premature infants is equally substandard. Premature infants are cared for in the full-term nursery in the same manner as full-term babies. There is no trained nursing staff at any time during the day or night. The 1 untrained worker provided for the nursery also spends about 2 hours in the formula room preparing formulae, during which time the nursery is completely uncovered. Premature babies are fed with propped bottles, as are full-term babies. As a typical example of the kind of care given in such a hospital, for a 5 day period, the temperature of 1 small premature infant weighing 3 pounds 8 ounces at birth, was never taken. The infant was in an incubator, but the temperature of the incubator was never checked or recorded. The baby was not seen by a pediatrician until a week after birth, when its condition became critical. A review of the baby's record during the 13 days it survived, revealed no report of any physical examination at any time or any progress notes by any physician. Certainly a baby of this weight, which was in sufficiently good state to survive 13 days under these conditions, could probably have lived on, had adequate care been continuously available.

In contrast to these three illustrations of substandard care, Hospital "D" is an example of the type of care which should be available to all premature infants.

There is an excellent pediatric staff responsible for all procedures in the premature unit. There is, too, a well supervised house staff. Medical policies are based on scientific investigation, and the procedures are well carried out. There are daily rounds made by the attending pediatrician, as well as weekly teaching rounds. The quality of the staff is attested by the fact that even physicians of good standing prefer to give up the care of their patients to the trained pediatric staff available. Annual statistics of the premature unit are kept, and are used as a guide in an effort to improve care. These statistics, incidentally,

bear out the impression that excellent care is given to premature infants. A manual on the care of the premature infants has been developed as a guide for both physicians and nurses. The nursing staff is under the supervision of a nurse who has had considerable training and experience in the field of pediatric nursing. Although this hospital has been affected, as have all hospitals, by the current nursing shortage, it has, nevertheless, been possible by wise allocation of duties to provide sufficient nursing care through the use of auxiliary workers who are not nurses. Emphasis is placed on having *good* supervision and on special training for all those who work with the premature. The premature unit is self-contained, almost completely segregated from other services of the hospital. Considerable space has been allocated so that there is no overcrowding. There is sufficient utility, work, and storage space. Premature infants are held or supported when fed, and bottles are never "propped." When gavage tubes are used, they are introduced by experienced pediatricians and nurses or by auxilliary personnel under close supervision. Recording of the infant's reactions and feeding is done carefully and intelligent use made of the information so recorded. Mothers are taught how to care for their premature babies, so that they have a feeling of security and competence when they finally take them home. The hospital also uses another method to maintain a close relationship with the parents. Each evening, the resident physician in the premature unit has office hours, so that parents may confer with him in person or by telephone. There is, too, an excellent working relationship with the community nursing service; home conditions are investigated prior to the discharge of the baby, and the public health nurse actually helps with the care of the baby in the home. The hospital reports a smaller number of readmissions since this system has been in use.

COST OF CARE

It is well recognized that care of the premature baby is costly—careful nursing, oxygen, transfusions, etc., are items which add appreciably to the cost of care. Actual cost figures indicate that $18 per hospital day (as of April, 1948) is not exorbitant, that cost varies widely from hospital to hospital, and that costs are mounting rapidly. Nevertheless, the administrator needs to know what doctors and hospitals can be expected to request in caring for prematurely born infants. An analysis has been made of the cost of caring for 378 infants under the EMIC program in New York City in 1943, 1944, and 1945. In the group were 353 infants weighing less than 2,500 gm. and 25 who weighed more but were declared "premature" by the physicians who cared for them and for whom special service was requested, given, and paid for. These 25 are included in the cost figures because it is believed that care for such babies (i.e., debilitated or "immature" infants slightly over 2,500 gm.) will usually be asked for.

CONDITIONS OF PAYMENT

In order to interpret the data, it is necessary to know the pertinent facts relating to payments allowed. Hospital care was paid for on a cost basis and varied from hospital to hospital. During the period covered by this report, the average cost was approximately $8 a day, with a ceiling set at $8.25 so that more than this could not be paid. Hospital care of a new-born infant was paid by EMIC only after the mother was discharged. Since the average length of hospital stay of the EMIC maternity patient in New York City was 9.8 days, an additional maximum of 9.8 days' cost should be added in order to calculate payments made for hospital care for EMIC premature infants. This fact

TABLE 2

Payments Made for Care of Premature Infants by EMIC Program, New York City, 1943–1945

Type of Service Paid for	All Prematures		Prematures Who Survived		Prematures Who Died	
	Amount of Money	Per cent of Total	Amount of Money	Per cent of Total	Amount of Money	Per cent of Total
Hospital *	$64,011.34	80.0	$61,276.64	80.1	$2,734.70	74.3
Attending Physician †	5,084.00	6.3	4,902.00	6.4	182.00	4.9
Consultant	2,572.00	3.2	2,376.00	3.1	196.00	5.3
Private Nurses	6,422 50	8.0	6,214.50	8.1	208.00	5.4
Visiting Nurses	150.50	0.2	150.50	0.2	....	...
Oxygen	1,158.30	1.4	1,020.30	1.3	138.00	3.8
Blood and Plasma	385.80	0.4	249.50	0.3	136.30	3.8
Breast Milk	338.58	0.4	267.03	0.4	71.55	1.9
Ambulance and Drugs	45.00	0.1	33.40	0.1	11.60	0.6
Totals	$80,168.02	100.0	$76,489.87	100.0	$3,678.15	100.0
Average cost per case	$212.09		$217.30		$141.47	

* Includes cost of all hospital care, exclusive of the first 10 days of life except for those infants who were transferred from one hospital to another.

† Includes cost of all attending physician care, exclusive of the first 14 days of life.

does not apply to the EMIC premature infants who were transferred from one hospital to another, or for those who died.

Payment to the attending physician also requires interpretation. Under the regulations of the EMIC program in existence during the period covered by this report, the physician who delivered the mother was not paid additionally for the care of the new-born infant during the first 2 weeks of life. Therefore, in calculating true costs of paying for medical care, for the premature infant only, allowance would probably have to be made for additional payment to cover this early period. EMIC fees paid to the attending physician were $3 for a home visit; $2 for an office or hospital visit; for long-standing care the fee was $24 for a 3 week period, and $6 for each additional week. After December 15, 1944, diplomates of the American Board of Pediatrics were paid fees 50 per cent higher than those quoted.

Since prematurity was considered a condition requiring special care, pediatric consultation was strongly urged for all premature infants. Payment to qualified consultants was made from birth on at the following rates: $15 for the first home visit and $10 for each visit thereafter; $10 for the first office or hospital visit and $5 for each visit thereafter. Practically all consultation care for this group of EMIC premature infants was given in the hospital. Consultants were considered "qualified" if they were certified by specialty boards or had training and experience equal to that required for entrance to Board examinations.

It should be emphasized that the amount of service required—medical, hospital, nursing, consultation, and the miscellaneous types—was decided by the physician rendering care to the individual patient. Presumably, therefore, the amount of care given to this group of EMIC patients was determined only by the medical condition and needs of the individual patient.

OVERALL COSTS

A total of $80,168.02 was expended for all types of care rendered to this group of 378 infants, or an average cost of $212.09 per infant. A more detailed analysis of the cost is presented in Table 2.

Table 2 shows that the great bulk of funds (80 per cent) was spent for hospital care, with approximately 10 per cent more for medical care, and 8 per

TABLE 3

Amount Paid for Supplementary Services Given Premature Infants, EMIC Program, New York City, 1945–1946

Service	No. of Cases in Which Care Was Paid	Per cent Infants Receiving Care	Aver. Paid per Case	Range of Pay
Private Nurse	16	4.2	$16.99	0–$1,705.00
Visiting Nurse	42	11.0	0.39	0– 15.00
Oxygen	18	5.0	3.07	0– 420.00
Blood and Plasma	20	5.0	1.02	0– 50.00
Breast Milk	9	2.0	0.89	0– 82.62
Ambulance	3	1.0	10.00	None
Special Drugs	4	1.0	15.00	None

cent for nursing care. The average cost per case of the group who survived was $217.30 as compared with $141.47 for the group who died. These figures are probably high, since this particular series of infants contains relatively few premature infants who died within the first few hours of life.

Hospital care was paid for 368 of this series of 378 infants at an average of $169.34 per case. There was a range from "no payment" to $900. Payment to the attending physician was made for 165 of this series. Of the remaining 213 infants, 204 were ward cases in which no individual physician was paid. There was a range from "no payment" to $228 per case with an average of $30.81 paid per "non-ward" case.

Payment for consultant service so that the general practitioner could benefit from the greater experience of the qualified pediatrician was encouraged. In many instances individual attending physicians were called and this service offered. It was used in only 17 per cent (65 out of 378) of the 378 cases, but as pointed out below, a considerable number of these infants were ward patients who were already under the care of pediatricians so that special consultation was not indicated. Payments for consulting pediatricians for the entire group averaged $6.80 per case with a range from "no payment" to $195. For those babies for whom service was provided, the average amount paid was $39.57.

These figures, however, do not give a complete picture of the amount of pediatric care that the EMIC premature received. Of the 26 premature infants who died, 14 were cared for by a pediatrician and 12 were ward patients. Therefore, presumably, all infants who died were seen by a pediatrician. Of the 352 premature infants who survived, 78 were seen by a pediatrician and 168 were ward patients. This then makes a total of 246 or 67 per cent of those prematurely born infants surviving who were seen by a pediatrician.

The average and range paid for other supplementary services are seen in Table 3. It is interesting that only a small number of cases received such supplementary services.

Visiting nurse agencies did not charge for routine visits made as part of the community-wide program of visiting newly born infants. Of the 42 cases paid for, an average of only 2.4 visits were made per case. The one special medication paid for by EMIC for this group was penicillin.

The cost of these services, exclusive of special nurses which became more important under wartime conditions, was thus very small. It seems doubtful if these special services added enough to the income of the hospitals to compensate for the work entailed in securing approval for payment. Nevertheless, the fact that payment could be made did much to improve relationships with physicians, families, and hospital administrators and in some instances was important for infants' welfare.

TABLE 4

Average Length of Hospital Stay of EMIC Premature Infants by Birth Weight Groups, New York City, 1943–1945

Weight Group	Totals			Infants Who Survived			Infants Who Died		
	Number of Infants	Number of Hospital Days	Average Length of Hospital Stay	Number of Infants	Number of Hospital Days *	Average Length of Hospital Stay	Number of Infants	Number of Hospital Days †	Average Length of Hospital Stay
Under 1,000 grams	5	180.6	36.1	2	175.6	87.8	3	5	1.6
1,000–1,499 "	42	1,995.0	47.5	29	1,677.2	57.8	13	317.8	24.4
1,500–1,999 "	134	5,267.0	39.3	129	5,166.2	40.0	5	100.8	20.2
2,000–2,500 "	172	4,457.0	25.9	167	4,341.6	26.0	5	115.4	23.1
Over 2,500 "	25	610 0	24.0	25	610.0	24.0	..	..	..
Totals	378	12,509.6	33.1	352	11,970.6	34.0	26	539.0	20.7

* The above figures were estimated by adding 9.8 days to the number of days paid for in the cases of infants who survived.

† Estimates of length of stay of infants who died were based on the number of days paid for and age at death.

LENGTH OF STAY IN THE HOSPITAL

The length of time that the baby will have to stay in the hospital is an important factor in determining the cost of his care. Under the EMIC program, the medical status of the infant was supposedly the only factor determining the amount of hospital care needed, since the financial question did not arise. The average length of hospital stay of the 352 prematurely born infants in this study who survived was 34.0 days and of the 26 infants who died 20.7 days.[10] It must be remembered that many prematures who died within the first few hours were not included in the calculation of length of stay. Further data on the length of stay by birth weight group are presented in Table 4.

It is seen that in the series of infants who survived, the group weighing less than 1,000 gm. remained in the hospital approximately 3 months; the group weighing 1,000–1,499 gm. approximately 2 months; the group weighing 1,500–1,999 gm., 1½ months; and the group 2,000–2,500 gm., approximately 3½ weeks. The group who died represents such a small sample, that no valid conclusions may be drawn regarding length of stay.

AMOUNT OF TRANSPORTATION

In planning a community program for the care of prematurely born infants, the administrator must have some estimate of the expected amount of transportation of infants from one hospital to another or from the home to a hospital. In this EMIC series, 24 per cent of the premature infants who died and 6 per cent of those who survived, or 7 per cent of the total group, were known definitely to have been transported.

In another study of premature infants who died in New York City in 1946, it was found that 19 per cent of the prematures in this other series were transferred.

SUMMARY

1. Some of the problems facing those interested in reducing the number of infant deaths associated with premature birth are presented, using factual materials collected in New York City during the past three years. The emphasis is placed on those which are of interest to the administrator who may wish to plan a special program of care for the prematurely born infant.

2. In 1947, 14 per cent of the babies with a recorded birth weight of less than 2,500 gm. died in the first year of life. Deaths of these babies accounted for 38 per cent of all infant deaths, and the mortality rate in the prematurely born group was 13 times that of babies weighing more than 2,500 gm.

3. Surveys of all hospitals showed a wide variation in the kind of care given. There was great need for improvement, particularly in the hospital with a small maternity service.

4. Studies of payments made under the EMIC plan for prematurely born infants show an average cost of $217.30 a case for those who survived, and $141.47 for those who died.

5. The average length of hospital stay of the premature who survived in this series was approximately 30 days. All of those who died and two-thirds of those who survived were seen by a pediatrician.

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Passano Award to Dr. Avery

Oswald T. Avery, M.D., Emeritus Member of the Rockefeller Institute for Medical Research, received the 1949 Passano Foundation Award of $5,000 at the annual award dinner in Atlantic City on June 8, during the annual meeting of the American Medical Association. The award goes to Dr. Avery for his extensive investigations of the pneumococci, their classification, analysis and immunological relationships. Dr. Avery was one of the five A.P.H.A. Lasker Award winners in 1947 "for studies on the antigenic constitution of bacteria." He is a member of the Association.

The Passano Foundation, established by Williams & Wilkins Company, medical publishers, Baltimore, to aid advancement of medical research, has previously made other awards to E. J. Cohn, Ph.D., Harvard University, for his work on fractionation of blood; Ernest Goodpasture, M.D., Vanderbilt University, for virus culture by chick embryo method; Selman Waksman, Ph.D., of Rutgers University, for discovery of streptomycin; and last year a joint award to Helen B. Taussig, M.D., and Alfred Blalock, M.D., both of Johns Hopkins University Medical School, for "the blue baby operation."

The Child Health Institute in Rochester, Minnesota*

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THE Rochester Child Health Institute, which from its start in 1944 until its incorporation this year was called the Rochester Child Health Project, has as its concern the physical and mental health of all the children of Rochester, Minn., a city of 33,000. It does not function as a self-contained institution, nor are its basic aims very original. Many of the services to which its staff contributes are not new to Rochester. There were well baby and well child clinics before; there was a nursery school before. Most of the services to which it contributes are actually under other auspices: the Rochester and Olmsted County Health Unit, the well child conferences of the Mayo Clinic, the section on obstetrics and gynecology of the Mayo Clinic, and the public and parochial schools. Even its staff is largely borrowed from other institutions: pediatricians and psychiatrists from the staff of the Mayo Clinic, fellows in pediatrics and psychiatry from the Mayo Foundation, and public health nurses from the Rochester and Olmsted County Health Unit and the University of Minnesota.

What is it then? Basically it is a focal point which draws together agencies, individuals, and points of view in the field of child health, and then tries to bring them to bear on the children through available activities. When staff and facilities are not available or not sufficient elsewhere the Institute itself may supply them. That is why it has 3 psychologists, 1 full-time and 1 half-time pediatrician, a nutritionist, and a nursery school supervisor who are its very own, not loaned by anyone else. It also has some secretaries and statistical workers. It has some small offices of its own. In one respect its situation is unusual. There are only two private practitioners of medicine in Rochester who are not connected with the Mayo Clinic, and neither of them is a pediatrician. Therefore the Institute has the field of preventive pediatrics and psychiatry almost entirely to itself.

Dr. Henry Helmholz, for many years head of the section on pediatrics at the Mayo Clinic, conceived the idea, won the medical backing of the clinic, and the financial backing of the Mayo Association, and persuaded Dr. C. A. Aldrich who had pioneered in the fields of mental hygiene and child development within the field of pediatrics, to become director. The Mayo Association provided the entire financial support until this year, when the Institute was incorporated in order to appeal for the additional funds necessary if it is to fulfil its broad aims.

Prenatal care is carried out in two clinics: those of the sections on obstetrics and gynecology of the Mayo Clinic and the Rochester and Olmsted

* Presented at the Round Table on The Family as the Unit of Health, in connection with the Twenty-fifth Annual Conference of the Milbank Memorial Fund, November 17 and 18, 1948. The proceedings of the Round Table will be published in a single volume by the Milbank Memorial Fund.

County Health Unit in the city hall. The latter is staffed by public health nurses, the Institute nutritionist, and fellows in obstetrics from the Mayo Foundation, supervised by a Mayo Clinic staff consultant. Prenatal classes for expectant parents have been tried a few times in the past with only moderate success. We want to try again when we have more staff and more wisdom. A few obvious cases of emotional disturbance in pregnancy are referred to psychiatry in the Institute, but we do not yet have the staff which we want for the routine psychiatric evaluation of all prenatal patients.

Practically all Rochester babies are born, at the rate of about 600 a year, in St. Marys Hospital, which is staffed medically by the Mayo Clinic and Foundation. A member of the section on pediatrics of the Mayo Clinic who is also on the staff of the Institute is in charge of the new-born nurseries, and he and a fellow in pediatrics make rounds to see all the mothers daily. This is the first contact between the mother and the Institute staff proper. A family history is taken. The Institute philosophy, with its emphasis on respect for the child's own developmental pattern, self-regulation of diet and schedule, and value of breast feeding, is gotten across through casual conversation on rounds, through the fellow's longer individual talks with each mother, and through printed leaflets, 3 of which are given during the 8 day lying-in period.

Within a couple of days of going home a public health nurse makes a home visit.

The babies return to the well baby clinics at monthly intervals during the 1st year, five times the 2nd year, and twice the 3rd, 4th, and 5th years. There are two clinics, the largest run by the Rochester and Olmsted County Health Unit at the city hall six half days a week and staffed by an Institute pediatrician, Mayo Foundation fellows in pediatrics, and the public health nurses. A smaller clinic for private patients, which meets five afternoons a week at St. Marys Hospital, is similarly staffed except that the pediatrician is a member of the section on pediatrics of the Mayo Clinic.

Again, the emphasis in the doctor-parent conference and in the leaflets, which are different for each age period, is on what to expect at each developmental stage and how to adjust to it. Dr. Leona Baumgartner of the New York City Health Department, who visited the Institute recently, said jokingly that in the usual well baby clinic you see the doctor talking and the mother nodding, but that in Rochester the mother is talking and the doctor nodding.

Medical examinations are given all children before they enter kindergarten or the 1st grade, and also during the 5th grade, 9th grade, and 12th grade. In addition, children in other grades are examined if they have had previous lesions or if examination is requested by the teacher, parent, or public health nurse. The examinations are unusually careful as school examinations go, being scheduled at the rate of one every twenty minutes. The parent is invited to be present (for children under high school age), the public health nurse is present, and the teacher is available. The referrals are pediatric, dental, and psychiatric.

The public health nurses are distributed predominantly on a geographic basis so that a family has the same familiar nurse whether at the well baby clinic, a school health examination, or a sick call.

There is a wise nutritionist on the staff of the Institute who consults in the prenatal clinics and the well baby clinics, works with the teachers in the schools and takes referrals generally from the public health nurses.

At present there are three nursery schools in Rochester for 115 three year and four year olds, organized by a citizens' committee and supervised by an expert from the Institute. Tuition is paid in full or part by parents but some scholarships are provided by service clubs. There is a total of five sessions a day, with two paid teachers for each session. Two of the nursery schools are located in public school buildings through the courtesy of the school board, but there is no other official connection with the public school system. There is also a nursery school run by the Catholic parochial school which the Institute nursery school supervisor advises.

The psychiatric staff of the Institute consists of a half-time pediatrician with psychiatric training, a part-time psychoanalytic psychiatrist who supervises the direct psychotherapy of children, and three Mayo Foundation fellows in pediatrics and psychiatry. There are referrals of early problems from the well baby clinics, from the schools, from the public health nurses, from the psychologists of the Institute, and from parents directly. Once a week there is a psychiatric case conference in one of the schools, at which a problem child is discussed from the points of view of teacher, public health nurse, and pediatrician. The emphasis is as much on community management as on psychotherapy, as much on prophylaxis as on treatment.

Mental Health Act funds now are available to the Rochester and Olmsted County Health Unit for a small counseling clinic for adults and children. It will have a psychiatrist-administrator and a well trained psychiatric social worker to start with. When it is actually set up, the psychiatric staff of the Institute will function as part of its staff in respect to cases which require any appreciable length or intensity of psychotherapy. The simpler problems of the early childhood years, which mainly require advice to parents, will be handled in the pediatric setting in the well baby clinics, whenever possible by the fellows in pediatrics, under psychiatric supervision.

The psychologic staff consists of three experienced people who at present are concentrating on a fairly thorough evaluation of all the children as they reach the age of 2½ years. There are three aspects to this evaluation: a Stanford-Binet test, a determination of the child's present adjustment in such areas as feeding, toilet training, sleeping, discipline and sociability, and a discussion with the parent. In the latter, the child is not compared with other children but is interpreted in terms of his individual needs.

Plans are being made to repeat the psychologic evaluation as each child reaches the age of 5 years. These cross-sectional estimations at 2½ and 5 years are only a more thorough addition to the developmental and adjustment data secured at every pediatric visit. They have already shown, however, the inaccuracies and the omissions in the routine questioning of the less experienced fellows in pediatrics. They have shown also, even in a community where psychiatric and psychologic advice is freely available, that for every parent who has spontaneously sought help for a problem such as toilet training resistance, there are several who have struggled along without mentioning it.

Another plan in the psychologic field is to ask each school teacher to evaluate each of her pupils each year on an adjustment questionnaire which we have prepared. This will help us to keep track of the children's development in the school years when the pediatric contacts are infrequent and will, incidentally, help the teachers form better estimates of their pupils.

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has so far worked successfully in a number of directions. The pediatric supervision of all the children of the city is good especially in the preschool years. The percentage of kept appointments for routine check-up is impressive. The philosophy of respect for the child's individual developmental pattern really seems to get across to the majority of parents. I think it shows, for instance, in the striking infrequency of feeding problems. As a newcomer in Rochester, one is impressed by the relaxed, friendly, accepting attitude of most mothers in the clinics. The value of healthy emotional development is recognized by staff, fellows in training, and parents. The desire for nursery school facilities keeps increasing. Some of the individual psychologic problems in children are being helped and the staff is learning how to detect them, how to prevent them, and how to treat them. All these gains will be applicable elsewhere. But we all feel that we have made only a beginning.

We are aware of the lack of continuity in guidance between pediatric visits and between psychiatric visits. The public health nurses in their present numbers are too few to follow up all the problems between visits. The small departments of city and county welfare have their hands full with the more severe social problems.

There is much fundamental research to be done concerning normal development, both physical and emotional, and the interrelationships between the two. What part do inborn temperament, parental attitudes, and place in the family play in developmental patterns? Can inappropriate parental attitudes be changed before the child is born by methods that have a wide application? What part is to be played in the future by pediatrician, public health nurse, psychologist, social worker, nursery school and grade school teacher, and psychiatrist in guiding children's all-round development? We all know how individual children have been helped, but we certainly have not yet worked out a blueprint for using all the professional resources of the community for all the children. How far can pediatricians be helpful in preventive psychiatry? Should a corps of guidance psychologists or psychiatric social workers be trained to take up where the pediatrician leaves off? Can the values of nursery schools for children and their parents be spread thinner over more of the community?

We want to experiment with guidance nurseries for the flexible use of a large number of children and parents with no registration and no preconceived duration of attendance. We want to experiment with itinerant nursery school teachers who will move from neighborhood to neighborhood, showing children how to have fun with each other, and showing parents how to get along with their children near home or in it. We have got to experiment for decades with different approaches to parent education, going back at least far enough to reach the future parents when they are in high school. We have hardly begun to make contact with all the other organizations, from the city council and the Young Womens Christian Association to the Kiwanians and the real estate board, who do not think of themselves as child care agencies but are influencing children nonetheless.

I would like a chance to make another progress report on the problem in 25 years.

Relation of Nutrition to Infection in Children*

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THE topic "The Relation of Nutrition to Infection in Children" [1,2] is one that has long intrigued the minds of many interested observers. The present study consists of clinical observations, only, on a group of 315 children followed for periods of 3 to 32 months in an outpatient department.

Before presenting the specific data it may be helpful to recall some of the facts of body metabolism as revealed by recent studies in other fields. Rudolf Schoenheimer,[3] by the use of radioactive carbon, hydrogen, etc., was able to trace the pathway of food substances in the body. By this means, a new tool for metabolic research has been provided, and as a result, a dynamic concept of the interchange of foodstuffs is now accepted, in which even the constituents of bone[4] are shown to be constantly used and renewed.

Remarkable strides are being made in the study of all phases of the body's metabolism by the use of this tool of radioactive isotopes. One of the most revealing of recent investigations is the demonstration that the metabolism of body fat[5] uses virtually the same enzyme systems known to be used in the splitting of sugars. This discovery is a most important contribution to the understanding of the *common pathway*[6,7] used by the body when obtaining energy from basic foodstuffs.[8] Though proteins[9-12] may be used as an energy source their more important use is to replace worn out and destroyed protoplasm. Fats[13] serve in several capacities, being used chiefly by the nervous system and for protective and insulative purposes as well as an excellent source of energy. Additionally, minerals[14,15] and vitamins[16-18] are equally essential for life.

METHOD

Children, ages 2 to 17, were sent, chiefly by city and, in part, by county health department nurses, from schools of a metropolitan city area following screening by teachers, to the outpatient department of a philanthropic health organization—The Mott Foundation Children's Health Center—where diagnosis was made. Children chosen had to show either some form of chronic infection or a faulty nutritive status or both. Of the 315 cases seen, all but 11, or 96.5 per cent, had some form of chronic infection present. The children came from medically indigent families only.

Observation was made in each case over periods that varied from 3 to 32 months. At least 2, and usually 4 to 5, visits were made per patient to the outpatient department. Such visits were most frequently at 1 to 2 month intervals. Careful history and physical medical examinations were performed on each child with laboratory work as indicated to establish the diagnosis. The

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assistance of a dental department, an ophthalmologist and an otolaryngologist was also available. Medical advice and treatment was given according to the nature of the illness found, but in all cases some form of supplemental therapy was administered consisting of vitamins ABCD, with iron and liver additionally, where it was considered essential. Sulfadiazine or penicillin was administered also when more acute illnesses supervened.

FINDINGS

An exceptionally poor nutritional status or an infection of greater than usual severity occurred 63 times or in 20 per cent of all cases. Multiple conditions were seen to be the rule, with 85.8 per cent of all patients presenting 2–5 different diagnoses at the same time on the first visit.

Diseased tonsils led the list and were found in 72 per cent of all cases. Involvement of the upper anterior cervical lymph nodes was second and was found in 67.3 per cent of all cases.

A faulty nutritive status, as determined by clinical observation alone, made up 125 out of 315 cases, or accounted for 39.5 per cent of cases seen. Such nutritional defects included marked thinness, definitely poor muscle tone, rough skin, dry hair, increased scleral vascular injection, undue prominence of papillae of tongue, redness or magenta discoloration of tongue, fissures at angles of mouth, gingivitis not associated with dental causes, extreme nervousness for which no other cause could be assigned, and evident pellagra, rickets, or other fully developed faulty nutritional status. However, it should be remarked that fully developed cases of clinical malnutrition and avitaminosis were but seldom encountered.

In children, the commonest statement made in complaint by the mothers concerning the child when questioned was that the appetite was poor. The next most common complaint was the observation that the child was nervous.

The one procedure that was somewhat routine, when indicated, was tonsillectomy and adenoidectomy. However, the T and A's purposefully were delayed to see what remedial effect supplemental therapy would have. The total of 315 cases were divided into 3 groups. Group I of 227 cases, or 75.27 per cent, had no T and A's performed. Group II of 32 cases, or 10.47 per cent, had T and A's at the *end* of their period of observation, while Group III of 56 cases, or 14.26 per cent, had T and A's *during* their period of observation. In Group I, consisting of 227 children, 139 were considered to need T and A's when first seen. This was based on evidence of real infection or marked hyperplasia of the tonsils or adenoids or both. All 227 in Group I, however, were started immediately on supplemental therapy, along with such other immediate medical treatments as were deemed essential. At the end of their period of observation, 3 to 32 months, all but 6 of the 139 had improved to a point where no T and A's were needed.

There were in all a total of 1,058 diagnoses rendered. Of these, 696, or 65.7 per cent, pertained to infections, and 177 diagnoses, or 16.7 per cent, to some defect in the nutritional status, irrespective of defective teeth and its possible nutritional connections. Thus, infections and nutritional defects together accounted for 82.4 per cent of diagnoses recorded. In all, 59 different diagnostic headings were used. Infections accounted for 31 of these headings and nutritional disturbances for 10 of them, or together for a total of 41 out of 59 diagnostic headings.

The sexes are about evenly distributed, 156 being boys and 159 girls. The greatest number of individuals seen were in the age range 5 to 12 years inclusive, while ages 5 and 6 years accounted for the greatest numbers, be-

ing 46 and 44 persons respectively.

Weight gains were quite variable. Losses were present in 3 per cent; no gains in 6 per cent with ½ to 5 pound gain in 53 per cent, while 5½ or more pounds gain was made by 38 per cent of all children seen. High gains of 15–32 pounds were made by 5.7 per cent. Thus gains of some kind were present in 91 per cent of all children seen.

COMMENT

It is felt that the frequency of serious past illnesses [19,20] is important and here it is found that pertussis [21–23] heads the list, being practically 3 times as frequent as the next most frequent past illness, which is pneumonia. Pertussis is a far more serious illness than it is often given credit for. It is the cause, not only of the highest mortality found today among the communicable diseases of children, but it is also a precursor of chronic illness of such frequency as to merit close attention. Rheumatic fever, otitis media, scarlet fever, and measles as past illnesses occurred in a decreasing order of frequency, with only a scattering for all other causes.

SUMMARY OF RESULTS

Supplementation, consisting of vitamins A–D, B-Complex and C with, in some cases, iron and liver additionally, was administered to 315 children for periods of 3 to 32 months. Three hundred and four out of the total of 315 cases had some form of chronic infection present. In this group of 304 cases, improvement was noted in all the types of infections found, as well as an improvement in the nutritional status, excepting only 11 cases, 10 being not improved, and one being worse. Thus, only 3.6 per cent of the total seen were not better following 3 months or more of the supplemental therapy. Or, in other words, of 304 cases, 293 or 96.4 per cent were better.

In addition to a lessening of the infection and the poor nutritional status, improvement was frequently seen in several other ways; namely, (1) a better appetite, (2) an increased growth, (3) an improvement in school work, and (4) a better attitude and behavior pattern.

An analysis of the results showed that 72.0 per cent of all cases fitted into the top three brackets of results—well, very much better, and much better on a 3 month minimum time period, while 85 per cent fitted into the same top three brackets on a 10 month minimum period of treatment and observation. This then shows 13 per cent better results for the longer minimum observation and treatment period than for the shorter.

Groups I and II together consist of those cases having supplementation *only* during the period of observation. Here, the longer 10 month minimum period for supplementation increased the good results in the top three brackets from a total of 69.7 per cent to a total of 82.9 per cent, or an increase of 13.2 per cent for the longer minimum period.

Group III, which is supplementation *plus* T & A performed during the period of observation, showed an overall better result than for supplementation alone. This held respectively for the 3 and 10 month periods of observation showing 82.2 per cent and 90.0 per cent of good results in the top three brackets respectively for the 3 and 10 month minimum periods. Thus, for Group III the 10 month minimum period showed approximately 7.8 per cent more good results in the top three brackets than did the 3 month minimum period.

CONCLUSION

Supplementation alone, for a 10 month minimum period of observation and treatment, showed 82.9 per cent of children well, very much improved, or much improved. Where T & A's seemed indicated and were done additionally to supplementation, 90 per cent of all children so cared for fitted into the same category of well, very much improved, and much improved. While the numbers of children seen are not many, the trend, it is felt, is quite significant. It is felt, therefore, that when dietary supplementation is administered to all cases of chronic infection, for a proper length of time, there is produced, in a large majority of such children, a very real and significant reduction not only in the infections and poor nutritional status found, but also in other retardations so commonly present.

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Large U. S. Fund For "Backward" Areas in Prospect

According to a press notice in the *New York Times* of May 15, it is believed that from 10 to 15 per cent of the funds sought for the world task of aiding backward areas, in accordance with point 4 of President Truman's State of the Union message last January, recommending aid to such areas, would be spent in each of the fields of health, education, and agriculture. The remainder of the fund would presumably go to development, through technical advice and otherwise, of such projects as roads and transport, flood control, power development, mineral and oil exploration, fisheries, and industrial development.

Officials of the Department of State pointed out that, although the needs of the under-developed parts of the world are tremendous, the possibilities for spending funds are not. Because the program deals with technical assistance chiefly it must be keyed to available trained man power.

The State Department has come to an increasing realization that the real limit to progress and expense is the number of scientists and technicians available to do the job.

Of the total of $105,000,000 expected, $30,000,000 would be asked in a new appropriation by the United States Congress and $20,000,000 in appropriations. It has already been asked to contribute to certain United Nations agencies along similar lines and to the Institute for Inter American Affairs; $18,000,000 would be expected from Britain, Canada, France, and, perhaps other countries; $37,000,000 would come in local currencies of the countries being aided. While the new program would take over and correlate similar assistance which is already being carried out through the Institute of Inter American Affairs, it would not be involved with the technical assistance program of the Economic Coöperation Administration. The latter agency is seeking $16,000,000 for technical assistance in the Marshall Plan countries but for a different purpose because a more immediate contribution to European Recovery is being sought.

Influence of Protein Nutrition on Experimental Infection*

Physiological Aspects

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THE study here reported suggests that several differing forms of infection response in the experimental animal may remain adequate in the presence of severe protein deficiency. The extensive investigations reported from Cannon's Laboratory[1-9] favored a contrary infection-diet hypothesis—namely, that cellular defensive response such as antibody elaboration would be inadequate or defective in the protein deficient animal. This hypothesis is a natural outgrowth of the work of numerous groups of investigators. Schoenheimer, *et al.*[10] showed that the body proteins composing various tissues were constantly undergoing a degradation and resynthesis—were, in fact, in a state of dynamic equilibrium. Modification of physical chemical techniques, particularly the Tiselius modification of the electrophoresis of protein containing solutions,[11] resulted in more specific description of human plasma components. Among these was listed a globulin which moved more slowly than the two other distinct components he named in the electrophoretic field, hence was called gamma globulin. This substance has been isolated in Cohn's laboratory,[12] and constitutes about 10 per cent of the total plasma protein.[13] Enders demonstrated that a great many of the antibodies to certain infectious processes were to be found greatly, if not exclusively, concentrated in this fraction.[14] Kabat, however, pointed out that all antibodies were not gamma globulin, nor was all gamma globulin antibody.[15] White and others demonstrated that gamma globulin was apparently formed within lymphoid tissue and could be released into the systemic circulation by appropriate stimulation.[16] Since all cells are composed of protein containing protoplasm, Cannon's hypothesis that protein deficiency would seriously imperil antibody response has seemed eminently reasonable. The assumption of causal relationship between hunger, famine, and infection gained impetus from epidemiologic studies in Europe during the war of 1914–1918. The increased mortality—from tuberculosis particularly—was ascribed to nutritional deficiencies resulting from deprivation of proteins and fats.[17] This hypothesis has been, and remains, more conspicuous by reiteration than by demonstration.[18]

An adequate experimental approach is difficult to achieve since disease induced in the experimental animal may differ from that in man. In general, laboratory studies pertaining to response to infection associated with protein deficiency have measured phagocytic indices, humoral antibody titers produced by a nonpathogenic antigen, a lethal endpoint produced by a virulent, viable pathogen, or simply pathologic tissue changes. Concomitant studies of varia-

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tions in specific physiologic responses to diet and infection have been rather limited. The response of an organism to infection under any imposed condition is characterized by many adaptive phenomena. It, therefore, seemed desirable to test the implications of protein deficiency and infection further by simultaneous observation of several physiologic adaptations to controlled dietary deficiency and specific infection.

The albino rat seemed an appropriate experimental animal since its diet could be well evaluated, and sufficient base line data pertaining to growth and various other physiologic variables were readily available. Two diseases of economic import were studied: a paratyphoid variant and tuberculosis. The rat is relatively susceptible to the former and resistant to the latter. Successful antibody elaboration following infection with *Salmonella typhimurium* is an important factor determining survival of the rat. Minimal susceptibility or pathologic change subsequent to tuberculous infection would be expected in the rat. In view of the hypothesis in question, severe, controlled protein deficiency in the rat should alter both these expectations.

METHODS

After several extensive preliminary experiments, young growing male Sherman-strain rats were standardized on a control basal diet for 7–14 days. Approximately half were then fed protein deficient diets for an appropriate interval prior to infection. The animals were then divided into experimental groups and inoculated as follows:

	Diet	*Infected*	*Non-infected*		*Total*
Salmonella	18% casein well nourished	20	10		30
	2% casein deficient	18	12		30
			HK †	*Diet Control*	
Tbc.*	18% casein well nourished	19	6	6	31
	8% casein deficient	20	6	7	33
					124

* Four weeks after infection half of the surviving tuberculous rats in all groups were acutely reduced to a 2% diet protein level.
† Heat killed bacilli injected.

At intervals before, and for 42–58 days after, infection, growth rate, food consumption, and several blood and tissue studies were observed. Details pertaining to these methods are reported elsewhere.[19, 20]

RESULTS

The results of the *Salmonella* experiment can be briefly summarized.

Progressive weight loss approaching 20–25 per cent of starting body weight attended protein deficiency. Rats on the adequate protein diet appeared to eat rather more than did deficient animals. However, when adjusted to calories consumed per 100 gm. of rat per 24 hours, consumption in both groups was similar. Infection did not alter *ad lib.* intake.

Commonly used clinical laboratory procedures such as total serum protein and hemoglobin concentrations, total leucocyte and differential counts were applied. The results were not remarkable. Serum protein concentration and total leucocyte counts were somewhat diminished in the protein deficient rats.

By simultaneous determination of blood and plasma volumes with a dye technique,[21] it was possible to estimate changes in circulating proteins and hemoglobin. Such determinations indicated that diet protein deficiency resulted in a 30–50 per cent decrease in unit circulating proteins and a 40–50+ per cent decrease in unit circulating hemoglobin. Infection, *per se*, exerted little influence upon the quantity of circulating protein; but did result in marked diminution of circulating hemoglobin in both diet groups. This latter observation seems compatible with the so-called "hypoferremia of infection."[22]

The cellular composition of a section of femoral bone marrow from each animal was observed for indications of the influence of diet or infection upon hematopoiesis. Reduction of these tabulations to the simplest comparison of white cell-forming *vs.* red cell-forming series (myeloid-erythroid ratio) revealed that protein deficiency was associated with a tendency toward a relative increase of immature myeloid forms—an interesting observation in view of the lower total peripheral leucocyte counts in this group, suggesting a possible lack of a WBC maturing factor. In general, infection seemed to induce minimal change in the bone marrow.

Blood cultures failed to reveal a significant difference in the incidence of bacteremia in the two diet groups. Nor was a mortality difference observed. Humoral antibody titers in response to either the actual infection or a "recall" dose of specific antigen, indicated that deficient animals attained titers equivalent to those of the well nourished groups. The anamnestic response of deficient rats, in fact, was relatively better than that of the well nourished rats. This observation seems quite interesting when considered in reference to the concomitantly determined electrophoretic patterns of the plasmas of these rats. Protein deficiency was characterized by depletion of the albumin and gamma globulin fractions. Despite circulating gamma globulin depletion, the deficient rats had adequate humoral antibody elaboration. Moreover, despite a marked change in titer following secondary antigenic stimulation, there was no change in gamma globulin. These observations reaffirm those previously made that all antibody is not gamma globulin and vice versa.[15]

As another means of examining the hypothesis in question, studies similar to the foregoing were carried out on rats infected with human strain *Mycobacterium tuberculosis,* since tuberculosis is commonly said to be associated with malnutrition. The results of these experiments also may be very briefly summarized.

Growth and food consumption patterns were similar to those previously ascribed to protein deficiency.[19, 23] Tuberculous infection did not alter this pattern.

Histopathological review of various tissues indicated that the typical granulomatous lesions attained maximal development within four weeks after infection. Recognizable organisms had greatly diminished in number within another four weeks. No apparent difference of structure, incidence, or persistence of the specific lesion was noted in the different diet groups. No deaths from tuberculosis occurred during the two month observation period.

Changes in leucocyte and differential counts, hemoglobin and plasma protein concentrations, circulating protein and hemoglobin were essentially similar to those described in the protein deficiency and *Salmonella experiments*[19, 23] and represented a response to diet rather than infection. Electrophoretic analyses revealed no specific circulating plasma protein component changes characteristic of tuberculous infection.

Detailed data pertaining to these studies are available.[19, 20]

COMMENT

In commenting upon results which seem contrary to prevailing social, empirical, and emotional bias, several important qualifications must be stressed.

An appropriate experimental procedure involving the single variable of protein deficiency has not yet been reported. Rigid conclusions cannot be drawn from a biologic study involving isolated changing physiologic responses rather than a specific unequivocal statistical endpoint. Moreover, clinical inference derived from observations on non-indigenous disease in a selectively malnourished rat must be attended by considerable reservation. These studies, however, do suggest that the concept of protein deficiency causing inadequate response to infection would appear to be an over-simplification of a many faceted phenomenon.

SUMMARY

Under the conditions of these studies, protein deficiency did not appear to alter the susceptibility, resistance, course, or physiopathologic responses to either *Salmonella* or tuberculosis infections in the young growing rat.

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Laboratory Tests in the Diagnosis of Brucellosis*

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BRUCELLOSIS is a disease which may present an extremely diversified clinical picture. It may vary from a brief illness lasting only a few days to a prolonged chronic disease of many years' duration. In the acute stage, the symptoms are similar to those of many other infectious diseases, and the patient is usually ill enough to leave no doubt that he has a serious infectious disease. In chronic brucellosis, on the other hand, the symptoms are often multiple, vague, and difficult to evaluate. There are usually no physical signs, and the patient may not appear clinically ill. There are no pathognomonic symptoms or signs, and often the physician has only the patient's subjective complaints, which may closely simulate those of the psychoneuroses. In such a variable and poorly defined illness, a clear-cut clinical diagnosis is seldom possible. Under these circumstances, the physician must rely heavily upon laboratory examinations to substantiate or to render unlikely a diagnosis of brucellosis.

As with all laboratory procedures, a critical evaluation and understanding of the tests used in brucellosis are essential if they are to be a diagnostic aid rather than a pitfall. Diagnostic enthusiasm, coupled with uncritical reliance upon laboratory data has led not only to many wrong diagnoses, but also to defective clinical concepts of the disease.

The main laboratory procedures of use in brucellosis are: culture of the organism from the blood or other tissues, the agglutination test, the opsonocytophagic test, and the skin test.

CULTURE OF THE ORGANISM

The only positive proof of the diagnosis of brucellosis is isolation of the causative organism. Until recent years media and techniques for primary isolation of Brucella have not been adequate. Currently, the most widely used culture medium is Bacto-Tryptose broth fortified with vitamin B_1. We have found that Trypticase Soy broth † more nearly meets the growth requirements of many strains of Brucella. It is now used routinely in our laboratory. One per cent sodium citrate is added to the broth. Five ml. of the patient's blood is added aseptically to 75 ml. of medium and incubated at 37° C. in a closed jar. Ten per cent of the atmosphere is replaced by carbon dioxide which is essential for the initial growth of most strains of *Brucella abortus*. An occasional strain grows best in a slightly reduced oxygen tension. Certain strains of Brucella do not develop sufficiently in broth cultures to give gross evidence of their presence; they may grow feebly for a time and then die out. For this reason, frequent subculture to solid medium (Trypticase Soy agar) is neces-

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sary for isolation of such strains. Subculture also provides earlier identification of the organism. Routinely subcultures are made on the 4th day and on alternate days thereafter for a period of one month.

The most important single point in the isolation of the organism is frequent repetition of attempts. Daily cultures of venous blood for 7 to 10 days should represent the minimum effort in seriously suspected cases. Culture techniques are adequate to recover the organism when septicemia is present. The difficulty, however, arises in chronic brucellosis where septicemia is often absent or certainly not constant. Here, the culture of other tissues is of value. Occasionally the organism may be obtained by the culture of arterial blood following the injection of adrenalin; 0.5 to 1.0 ml. is given subcutaneously and an arterial puncture is performed 20 minutes later. In our laboratory, Brucella has been recovered from cultures of sternal marrow and lymph nodes when repeated venous blood cultures were negative. In all cases when other methods fail, biopsy of a lymph node is indicated. Unfortunately, a suitable hyperplastic lymph node is not always present. The culture of spinal fluid and surgical specimens may at times be worth while. Animal inoculation may be used in the case of tissues and specimens obtained with difficulty and when cultures cannot be repeated, but present culture methods are at least as reliable as animal inoculation.

By the diligent use of the described methods early in the disease, one should be able to recover the organism from most patients with brucellosis. We have yet to see a patient in the first 6 months of illness, in whom we seriously suspected brucellosis, from whom the organism was not recovered.

THE AGGLUTINATION TEST

The agglutination test is probably the most widely used diagnostic procedure in brucellosis. Seldom is such a commonly used laboratory method subject to so much controversy and misinterpretation. Aside from the biological variations due to the organism and to the host, the discrepancies which arise in performing this test are enormous. Sera of known cases of brucellosis when submitted to recognized laboratories yield highly variable reports. Recently we submitted 21 sera to 5 different laboratories.[1] Eighteen of these were called negative by one or more laboratories. Of these 18, 16 were elsewhere called positive in titers of 1/200 or higher, and 12 were called positive in titers of 1/320 or higher—titers which are frequently considered as substantiating a clinical diagnosis. Tests on the same sera in our laboratory against a number of "standardized" commercial antigens yielded as variable results. It is apparent that in everyday practice the reported titer of a serum depends as much upon the laboratory where the test is performed and upon the antigen used as upon the patient's disease. There is great need for standardization of antigens and technique.

Cross-agglutination with other organisms must be considered. It has long been known that there is an antigenic cross with *Pasteurella tularensis*. There is also a significant relationship between the organism of Asiatic cholera and Brucella.[2] An H antigen of *Vibrio comma* is shared by Brucella.[3] The majority of individuals receiving the standard immunization against cholera develop significant titers against Brucella. These may persist for 2 or more years.[4]

An occasional case of culturally proved brucellosis may fail to show agglutinins. Such cases have been reported by reliable workers, but this occurrence is rare. Unfortunately, some enthusiasts have stretched this concept to the point

that they consider the absence of agglutinins the rule rather than the exception.

On the other hand, a high titer is not necessarily indicative of active disease. We have had under observation for 4 years an Italian-born 50 year old man who claims he has never been ill in his life. He works at hard manual labor daily. Yet this man without a symptom or history of any illness consistently runs an agglutination titer of 1/5,000. There are numerous instances recorded of healthy individuals with tests positive in dilutions of 1/1,000 or more. This, too, is the exception.

There is, then, no "diagnostic" agglutination titer in brucellosis. In general, a titer of 1/320 or higher, in the presence of symptoms, is presumptive evidence of the disease. A fluctuating titer which correlates with the presence and remission of symptoms may suggest active infection.

A rising agglutination titer during the course of an undiagnosed febrile illness is of some significance. Here again, other mechanisms may be operative. An anamnestic response may confuse the interpretation. We have observed this phenomenon in a patient with experimental malaria. Prior to the attack the agglutination test was completely negative, but there was slight opsonic activity of the blood. A few days after the onset of malaria the agglutination test became positive in a titer of 1/80, returning to negative again a few weeks after recovery. It is conceivable that higher titers might occur.

After vaccine therapy, of course, it is impossible to interpret the results of an agglutination test. A single injection of vaccine may render the test meaningless for months.

THE OPSONOCYTOPHAGIC TEST[5]

Compared to the agglutination test the technique of the opsonocytophagic test is more involved and must be more precise. Slight variations in technique or slight dissociation of the test organism render the results worthless and misleading. To insure dependability, control blood from known positive and negative individuals must be included each time the test is run. The test must be performed shortly after the blood is drawn. This alone renders it impracticable for the practitioner who does not have ready access to a specialized laboratory. Probably few laboratories perform this test in a reliable manner. Granted that results were dependable, the added information obtained from this test is not great. Opsonic activity probably does in some degree reflect bodily response to the disease. However, during active infection, the test results fluctuate so greatly as to be of little prognostic value. The test may be helpful when a patient has a low agglutinin titer and a markedly positive opsonocytophagic reaction. This suggests an immune state rather than active infection. It is also of some use when negative, as corroboration of a negative agglutination test and a negative skin test, thereby rendering the diagnosis of brucellosis quite unlikely.

THE SKIN TEST

Of the many skin test materials advocated, brucellergin[5] is the most generally accepted and the best standardized. The skin test is of very limited diagnostic value. It should be interpreted analogously to the tuberculin test. A positive test merely means that the individual has at some time been in contact with Brucella sufficiently to become sensitized. A minimum requirement for a positive test should be induration and edema of 0.5 cm. in diameter present at the end of 48 hours. However, the test is commonly misread, with transient erythema being considered as a positive test.

A small percentage of patients with brucellosis do not develop allergy. Also,

early in the course of the disease the skin test will be negative. There is little correlation between the intensity of response and the likelihood of active infection. A negative test may be of some value in rendering the diagnosis of brucellosis unlikely, and in our practice this is its chief use. Cholera vaccination does not produce a positive skin test,[2] nor does tularemia. The skin test may then be helpful in differentiating Brucella agglutinins from those engendered by these conditions.

It should be remembered that antigenic material is injected in performing this test. A small proportion of individuals will develop agglutinins and opsonins after a skin test, even though the test be negative. Hence, all other antibody tests should be completed before a skin test is done.

Finally, in the absence of positive cultures, every bit of information about the patient must be considered in establishing a diagnosis. The opportunity for exposure must be considered. A careful evaluation of the symptoms and clinical course, the physical findings, and the results of all laboratory data are necessary. The results of laboratory tests considered apart from the patient are meaningless. The diagnosis of brucellosis should not be made enthusiastically but critically.

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14 American Republics in WHO

On April 27, 1949, the delegate of Uruguay to the United Nations, Professor Enrique Rodriguez Fabregat, deposited at Lake Success Uruguay's ratification of the Constitution of the World Health Organization. Fourteen countries of the western hemisphere have now ratified: Argentina, Brazil, Costa Rica, Chile, the Dominican Republic, Ecuador, El Salvador, Haiti, Honduras, Mexico, Paraguay, United States, Uruguay, and Venezuela.

This means that the World Health Organization and the Pan American Sanitary Organization are now authorized to conclude a permanent agreement for the latter to become WHO's regional office for the western hemisphere. Since March 1, 1949, the Pan American Sanitary Bureau has been the acting regional office under a temporary working arrangement signed by Dr. Brock Chisholm and Dr. Fred L. Soper of WHO and Bureau respectively.

Chronic Brucellosis*

The Unsatisfactory Status of Current Diagnostic Methods

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THERE is much misunderstanding and misuse of the available laboratory methods in chronic brucellosis, with low grade or no fever. The need is great for a laboratory procedure comparable in accuracy to the blood complement-fixation reaction for syphilis. Until such a test procedure can be developed it is necessary to interpret the available reactions with greater accuracy and greater caution than is commonly employed.

SKIN TESTING

Although it has been recognized by almost every worker in this specialized field that skin testing with any effective *Brucella* antigen may stimulate agglutinins and opsonins, often in marked degree and for prolonged periods of time, there persists a tendency on the part of some clinicians to follow the easiest course, i.e., early and hasty performance of the intradermal test, prior to performance of the blood agglutination and opsonocytophagic tests. These clinicians then look to consultants, laboratory technicians, and bacteriologists for diagnostic help and are disappointed when told that they have committed the unpardonable sin—that of beclouding or destroying all other laboratory evidence (except that which may be obtained from culture).

Harm is done by the occasional report in the literature[1] which tends to absolve the skin testing antigen of agglutinin- and opsonin-stimulating properties. The concept has only recently gained acceptance that agglutinins even in low titer may have diagnostic significance when considered along with other laboratory and clinical data. In fact a tentative diagnosis may be largely influenced by such a combination as specific agglutinins in a titer of 1:40, a positive intradermal reaction (subsequently performed), and some degree of specific phagocytosis, in the presence of a clinical picture suggesting brucellosis. Since agglutinins in any titer are usually lacking in chronic *Brucella* infections, it is nothing short of carelessness to risk destroying the small chance that exists of obtaining diagnostic information through agglutinin (and opsonin) testing, on non-skin tested patients.

Routine skin testing of apparently well persons is to be condemned. It serves no very useful purpose for it does not distinguish the actively infected *Brucella* sensitized patient from the subclinical or inactive infection with persisting skin allergy. It does tend to induce artificial agglutinin and opsonin response which can cause diagnostic confusion if those persons later become ill with symptoms suggesting brucellosis. Furthermore, skin tests, even with the most reliable antigen (i.e., killed whole organisms) may fail to detect past or present *Brucella* infection; not rarely are skin tests negative in the

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presence of positive culture and high agglutinin titers.

The skin test is valuable only in conjunction with the battery of other specific tests, clinical history, and the nonspecific laboratory procedures such as complete blood count, sedimentation rate, and the like. It is a serious error to overstress the value of any of the single tests for none is definitive, except culture—and that only when positive.

Another error is the use of a nucleoprotein such as brucellergin for the intracutaneous test. It is unreliable. In 1938 Angle and his coworkers,[2] in the course of skin testing large groups in an attempt to determine the incidence of *Brucella* infection, especially in school children, carried out skin tests on 163 adults who had been using raw milk from an infected herd. Brucellergin and killed whole *Brucella* organisms were used simultaneously, in opposite arms; 89 patients (54.6 per cent) reacted to killed *Brucella* organisms, but of these only 44 patients (26.9 per cent) reacted to brucellergin. No conclusions were drawn from these findings other than that brucellergin is less likely to cause skin necrosis. In recent years a series of similar observations were carried out among patients referred to the writer because of clinical or laboratory evidence or both, of brucellosis. Among 48 patients tested with brucellergin and heat-killed *Brucella abortus* oganisms simultaneously, 35 patients (72.9 per cent) reacted to the whole organism and of these only 17 (35.4 per cent) reacted to brucellergin. Among those reacting to heat-killed *abortus* organisms but not to brucellergin was one whose blood agglutination reaction was positive in a titer of 1:1,280 and whose blood culture yielded *Brucella suis*.

Individuals skin-tested with brucellergin, even though with negative results, may become sensitized, thereby giving false-positive reactions to subsequent skin tests with other antigens. When skin tests carried out simultaneously with brucellergin and other antigens agree it may be due to contamination of syringes used for brucellergin skin testing with killed whole *Brucella* organisms.

It is true that brucellergin has a lesser tendency than killed whole organisms to produce skin necrosis but its lesser sensitivity as an index of *Brucella* allergy is too high a price to pay for this supposed advantage.

Weak reactions to intradermal antigens must be considered positive. They differ in significance from strongly positive reactions only in the degree of *Brucella* sensitivity indicated in that patient. Even this difference is not uniform, for some patients have little or no skin allergy but marked allergy in other tissues (e.g., negative skin test, positive culture, or agglutination reaction or both, and marked local, focal or systemic reaction to therapeutic doses of *Brucella* antigens).

Bacterial antigen complexes (BAC-Hoffman[3]) made from each of the three separate species of *Brucella* are under investigation as skin testing agents. They may not prove to be species-specific but they do give information as to species-allergy and therefore offer a useful guide to treatment by means of the same antigen. They may be used to supplement the information obtained from intradermal use of killed whole organisms.

BLOOD AGGLUTINATION REACTION

Brucella agglutinins are seldom present, even in low titer, in the chronic illness. Therefore it is essential that the technique be meticulous and that the exact titer be reported to the physician. It is generally agreed that titers of 1:80 or above are of definite significance and that lower titers *may* be significant. The preponderance of evidence indicates that a monovalent anti-

gen is adequate. The antigen should be a standardized and effective one, such as the alcohol treated suspension of smooth *Brucella abortus* employed by the Division of Laboratories and Research of the New York State Department of Health.[4] It is common, even now, for widely discrepant readings to be reported by two or three different laboratories on parts of the same blood specimen.

The microscopic blood agglutination technique, in titers of 1:40 and 1:80 only, is a useful screening method,[5] but must be supplemented by the macroscopic tube technique for greater accuracy and to determine exact titer.

The possibility of a prozone reaction[6-8] must not be forgotten. Sera must be examined in high as well as in low dilutions.

An explanation of the failure of agglutinins to appear or their tendency to disappear after once being present in patients in whom the disease process continues was offered by Griffitts.[8] Sera from patients known to be infected had the property of "blocking" agglutination of *Brucella* organisms suspended in a saline medium, but some of them agglutinated heavy suspensions of *Brucella* organisms suspended in a serum or albumin solution.

Other warnings regarding interpretation of the agglutination reaction are necessary. Cross-agglutination may occur in the presence of other infections due to *Pasteurella tularensis, Salmonella typhosa, Bacillus flexneri* and *Vibrio cholera*,[9,10] and perhaps in certain Rickettsial and viral infections. Cholera prophylactic vaccine as well as cholera infection may produce *Brucella* agglutinins (and opsonins). That fever of any origin[11,12] may produce specific *Brucella* agglutinins in uninfected persons has not been substantiated.

Agglutinins in apparently well persons may not be ignored. They may presage active, severe infection,[6] or subclinical infection[13] which later may become severe.

OPSONOCYTOPHAGIC REACTION

It is erroneous to consider this test result qualitatively. It should not be considered "positive" or "negative" for it simply expresses the degree of resistance possessed by the patient's phagocytes. With this concept there will result less confusion, for any degree of phagocytosis (from none to marked) may occur in the presence of *Brucella* infection. It is true, however, that phagocytosis of appreciable degree probably does not occur in the absence of *Brucella* infection, past or present. In that sense only, may a moderate to high reading be considered "positive." Never may any reading properly be called "negative."

The commonest errors in the actual performance of the test procedures are: (1) use of blood more than 3 hours old, (2) use of too high a concentration of citrate, (3) use of rough (dissociated) organisms or contaminated cultures, (4) use of non-virulent *Brucella* organisms, (5) use of any but the most meticulously careful technique in each step of the procedure. Inaccurate results from poor technique have led many workers to discard the test as unreliable. It is of great value as part of the battery of tests although of limited value in itself.

Most workers have found the *abortus* species alone a satisfactory test organism no matter what the infecting species, although some carry out the test with at least two species of *Brucella* separately. This adds to the expense and effort and has the disadvantage of exposing laboratory personnel needlessly to the more virulent *melitensis* or *suis* species.

Foshay and LeBlanc[14] devised a most helpful nomogram for the computation of a numerical phagocytic index. With the aid of Dr. DeWitt Smith a still

simpler and equally accurate method has been devised. The number of cells showing marked phagocytosis is multiplied by 4, those showing moderate phagocytosis by 3, and those showing slight phagocytosis by 1; the total is the numerical index, which corresponds exactly with the nomogram result.

CULTURE AND ANIMAL INOCULATION

Culture is understood to be the one definitive test for brucellosis, all important if positive but of no importance if negative. The need to carry out *repeated* cultures, especially in the chronic illness, to use only the most effective and complete of the special culture media, and methods, and to inoculate animals to supplement the cultural studies, under special circumstances, is still not fully appreciated. It is still the custom in some otherwise well run laboratories to discard cultures as negative if no growth is observed at the end of 10 to 21 days, to use routine instead of special methods (such as incubation in the presence of extra CO_2) and otherwise to frustrate the clinician's efforts to find laboratory proof of diagnosis. Many laboratories will take no active part in cultural attempts because of the danger to laboratory personnel. Such an evasion of duty is difficult to understand, although fear of dissemination of infection through animal inoculation is well founded.

Cultural methods have improved to some extent in the past ten years, but there is reason to hope for still better methods. Castaneda[15] offered some hope of simplification through the device of incorporating a vertical tryptose-agar slant in the side of a closed flask, at the bottom of which there is a mixture of tryptose broth and citrate to which the blood is added. This flask is incubated for not longer than 21 days and is turned on its side every 48 hours for the purpose of bathing the slant with the blood-broth-citrate mixture. If the organism is recoverable at all by this method, it usually will show fine grayish colonies within from 3 to 10 days. However, it is rarely that the *abortus* strain can be so recovered from the patient with a chronic infection, by this or other methods. There is not usually a bacteriemia in this phase of the illness; the *abortus* species grows with the greatest difficulty even in the presence of extra CO_2 Castaneda frequently was able to recover the *melitensis* species from acutely ill patients by this means. We have isolated *Brucella abortus* twice by this method; in both instances conventional methods for isolation of *Brucella* had failed.

It is often desirable to culture bile, urine, feces, spinal, synovial or prostatic fluid, and biopsy or operative tissue specimens, using special techniques[16] suitable to the material under study.

COMMENT AND SUMMARY

The available tests are inadequate for uniformly accurate diagnosis of brucellosis, especially of the chronic form. A more sensitive and comprehensive test is needed. It is to be hoped that a complement-fixation reaction for brucellosis can be developed that will fill this need.

Present laboratory methods are often unsatisfactory for the diagnosis of chronic brucellosis, as to sequence in which performed, technique and interpretation.

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Regional Salmonella Centre

The New York State Health Department's Division of Laboratories and Research has been designated as a regional Salmonella Centre by WHO, to collaborate with the World Salmonella Centre at the State Serum Institute, Copenhagen, Denmark. The World Salmonella Centre, with the objective of collecting and identifying salmonella strains, was established by authority of The World Health Organization in 1948, under the direction of Dr. F. Kauffmann, in the Danish State Serum Institute. The New York State Laboratory in Albany was one of the first American laboratories to collaborate with Dr. Kauffmann before the second World War when an International Salmonella Centre, financed by the Commonwealth Fund, was established at the Danish State Serum Institute. Marion Coleman, senior bacteriologist in the Laboratories and Research Division, is in charge of the local regional Salmonella Centre.

Rabies Vaccine Encephalomyelitis in Relation to the Incidence of Animal Rabies in Los Angeles

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THE field of communicable diseases has no more harassing problem than that of rabies. In areas where the disease is endemic the management of persons bitten by animals is unsatisfactory. Any advantage gained from the use of vaccine must be balanced against the chance of resultant, postvaccinal encephalitis.

The following indications for vaccination against rabies in the human being have been suggested[5]: (a) the biting animal is clinically rabid; or (b) is proved rabid by laboratory tests; (c) is suspected of being rabid; (d) in an endemic area, a stray animal escapes after biting; (e) an individual has handled an animal diagnosed as rabid and fresh abrasions of skin have been contaminated with saliva.

The number of persons who develop rabies after the bite of a rabid dog is not known with certainty but on the average may be 5 to 15 per cent[8]; if vaccine is given, the number may be reduced by half.[8] Too often, however, the situation involves categories (c) and (d) above. In such instances it is particularly necessary to estimate the likelihood of severe vaccination reactions. Table 1, as modified from McKendrick's figures of 1940 collected from worldwide sources, shows the incidence of paralytic accidents.[9] Such accidents are attended by a fatality rate of 5 per cent for the dorsolumbar type and 30 per cent for the Landry type of reaction.

Most of the vaccine used in this country is the Semple type and few data are available on the actual number of paralytic accidents here after use of such material. McCoy[6] reported an incidence of 1:2,900 among 17,600 treated persons but since 4 of the 6 reactions were fatal this rate probably is too low. Horack[3] recorded a rate of 1:1,200, 10 per cent fatal, among 24,000 treated persons.

TABLE 1

Incidence of Paralytic Accidents after Rabies Vaccine (from McKendrick, 1940)

Attenuated virus (Pasteur)	1:3,000
Diluted virus (Hogyes-Harris)	1:3,000
Phenol treated virus (Semple)	1:9,000
Ether treated virus (Alivisatos)	1:10,000
Heat treated virus	1:18,000

Some observations made on the incidence of postvaccinal encephalomyelitis in relation to the prevalence of animal rabies in Los Angeles City and County are presented here; 4 of the 9 cases listed were included in a previous report.[7]

Rabies is endemic in Los Angeles. There were (1946) approximately 3.5 million people living in an area of 4,000 sq. mi. in the county and almost 2 million in the 450 sq. mi. of the city proper. During the period of 25 years prior to 1947, there were 3,190 persons in the

TABLE 2

Cases with Reactions to Rabies Vaccine

Age Yrs.	*Sex*	*Vaccine Inject.*	*Type of Contact*	*Onset Days after First Dose*	*Dog*	*Clinical Impression*	*Hospitalization Weeks*	*Condition on Discharge*
2	M	7	Face bite	9	Not rabid	Encephalomyelitis	6 (fatal)	No virus obtained from brain by injection into mice. No Negri bodies.
15*	M	13	Bites hip, elbow	12	Not found	Meningomyelitis	2	Recovered.
33	M	13	?	?	?	Myelitis	0	Physician's record not available.
17*	F	6 (2 ml.) 8 (1 ml.)	Bite	18	Rabid (cat)	Encephalomyelitis	1	Residual stiffness back.
12	F	14	Petted dog	11	Rabid	Myelitis	2	Recovered. Completed rabies vaccine treatment 4 yrs. before.
11	F	5 (2 ml.) 6 (1 ml.)	Nonpuncture bite	10	"	Meningoencephalitis	1	Slight diplopia.
40*	F	5	Bite	4	"	Encephalitis	3	Marked improvement. Poliomyelitis 11 years before.
25*	M	11 (2 ml.)	Bite, hand	10	"	Transverse myelitis	1	Moderate urinary retention. Ankle clonus.
24	F	5 (2 ml) 6 (1 ml.)	Bite on leg	11	"	Meningoencephalitis	1	Recovered.

* Previously reported [7]

city bitten by dogs proved to be rabid, but 3,560 persons received rabies vaccine. Of 22 deaths from rabies 14 had no vaccine. In 20 years of this period there were 14 cases of human rabies in the county exclusive of the city.

In the city approximately 90 per cent of the dogs over 4 months of age are licensed. On the basis of 125,000 licenses issued in 1946 the city's dog population exclusive of puppies may be estimated to be 140,000. On the average, a laboratory diagnosis of rabies is made annually on 40 dogs. Thus, at least one dog in 3,500 in the city becomes rabid. Since there are an unknown number of rabid dogs either not brought to examination or not detected if examined, the actual incidence is almost certainly higher. Approximately 150 rabid dogs per year are found in the county outside the city but the total dog population in the county is unknown.

Some 10,000 animal bites per year are reported in the city; these are almost all by dogs. Approximately 70 persons per year are bitten by known rabid animals; thus, one bite in 140 is by a rabid animal. On the basis of a 10 to 15 per cent human fatality rate following the bite of a rabid animal [8] the chance of getting rabies from known animal bites in the city of Los Angeles is 1:1,400 to 1:2,100. This does not include the numerous unreported bites which must occur.

During the 7 year period of 1940–1946, 9 cases of severe postvaccinal reactions, including one death, occurred among 5,500 persons receiving vaccine in the city and county, an incidence of 1:600. Particulars concerning these cases are shown in Table 2. All received Semple vaccine. Although 4 were given the product of one manufacturer, there is no reason to believe on the basis of total use of this particular product that it is unusually encephalitogenic.

DISCUSSION

Even the remote probability of developing rabies from a dog bite indi-

cated by the rough approximation made here will not alter the necessity of employing vaccine for any person bitten by an unidentified dog. Certainly, however, many persons receive vaccine who do not require it.

On the basis of data presented here and elsewhere it is apparent that the incidence of rabies vaccine encephalitis is a real contraindication to its indiscriminate use. Without discussing the theories regarding the etiology of this condition, it is likely that the incidence will be reduced markedly when a product more completely purified of brain tissue is produced; most present vaccines consist of approximately 10 per cent suspensions of rabbit brains.

There is ample evidence that rabies can be controlled in the absence of any considerable wild animal reservoir by control of dogs. Various plans and programs for control are now under discussion.[1-4] It is certain that none will be effective unless accepted by the public. This aspect is complicated in the Los Angeles area by the presence of a large and highly vocal group of dog fanciers who tend to resist all efforts to interfere in any way with the dog population. While such persons may reject programs based on protection of human beings they can scarcely fail to accept one designed primarily for the protection of dogs.

SUMMARY

In Los Angeles City and County approximately 200 rabid dogs are detected annually. There is only one human case per year but at least 800 persons are given rabies vaccine. The chance of acquiring rabies from known dog bites in Los Angeles is estimated to vary from 1:1,400 to 1:2,100.

There were 9 cases, one fatal, of postvaccinal encephalomyelitis among 5,500 treated persons, an incidence of 1:600.

An adequate rabies control program acceptable to the public and directed at the canine population is highly desirable.

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A "Physical Growth Record" for Use in Elementary and High Schools

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IN 1947 the writer was invited to prepare a "Physical Growth Record" for use in schools. The invitation came from the Joint Committee on Health Problems in Education of the American Medical Association and the National Education Association. Specifically, what the Joint Committee requested was a proposal for systematically recording and interpreting measurements of "height and weight" on school children—one that would lend itself to "wide distribution" and to sound yet ready use by the school nurse, the physical education instructor, or the one room rural school teacher.

A proposal was developed and prepared in the form of a 4 page booklet. This was submitted at a later meeting of the Joint Committee and, after preliminary favorable reaction, was referred to a subcommittee for detailed examination from the standpoints of format and content. A number of helpful suggestions were made by this subcommittee. Summarily, it was agreed by all parties concerned that (a) separate booklets would be prepared for boys and girls; (b) the charts on pages 2 and 3 of the booklets would begin at age 4 years and extend to age 18; (c) Drs. Dean F. Smiley and Fred V. Hein, on the basis of their practical experience with health education publications and school personnel, would make recommendations for improving the readability of pages 1 and 4 of the booklets; (d) the booklets would be sponsored and distributed by the Joint Committee; and (e) the writer would write an article describing the project more fully than was considered necessary in every booklet.

The booklets have been revised in accordance with the above agreements and are now available.* This paper is intended to constitute the writer's complete report on the project.

GENERAL FORM AND PURPOSE OF BOOKLET

Each booklet is designed for recording the growth in height and weight of a single child. Pages 1 and 4 of the booklet describe how to measure height and weight, how to register the measurements made, and how to interpret the status and progress information thus obtained. Pages 2 and 3 provide charts covering the age period 4 to 18 years for graphically depicting the growth of the individual in relation to growth norms. It follows that once a booklet has been assigned to a child it continues to be serviceable throughout the elementary and high school years.

The "purpose" of the booklet is stated to be that of supplying "interesting and helpful information" regarding the physical growth of school children. Near the top of page 1 space is afforded for indicating the child's name and date of birth. These are the only two personal items carried on the outside of the booklets. All of the physical

* They may be secured from the American Medical Association, 535 N. Dearborn St., Chicago 10, Ill., or the National Education Association, 1201 Sixteenth Street, N.W., Washington, D. C.

growth data collected on the child are recorded on the two inside pages—this gives the double advantage of protecting the data during filing and, whenever a booklet is open, of making visible the entire physical growth information accumulated on the child. There are separate forms carrying the captions "Physical Growth Record for Boys" and "Physical Growth Record for Girls."

HOW TO MEASURE HEIGHT AND WEIGHT

Weight—If available, use beam-type, platform scales. At the beginning of each examination period check the scales and, in the event they are out of balance, adjust them. Have the child remove shoes and sweater or jacket.* Request the child to stand in the center of the platform of the scales. As the weight record is read, make sure that the child's hands are not in contact with the head portion of the scales, with a wall, or with any other object. Determine weight to the nearest one-half pound.

Height—Use a measuring scale fixed in the upright position, and a wooden headpiece having two faces at right angles. The measuring scale may be an accurate yardstick, metric rod, steel tape, or paper scale.† Whatever type of scale is used, it should be firmly fastened either to a special upright board or (if there is no projecting wainscoting) directly to a smooth wall. While it is possible to use a chalk box as a headpiece, this is not recommended in a continuing school program. Secure a headpiece of more satisfactory design.‡

Measure height with shoes removed. Have the child stand with (a) heels, buttocks, upper part of back, and rear of head in contact with the wall or board; (b) heels nearly together but not touching each other; (c) arms hanging at the sides in a natural manner; and (d) head facing straight forward.** When the child is in position, place one face of the headpiece against the measuring scale and bring the other face down, keeping it horizontal, until it crushes the child's hair and makes firm contact with the top of the head. See that the heels are kept in contact with the floor, that the trunk is maintained in "non-slumped" contact with the measuring scale, and that no obstruction (e.g., clasp, braid, ribbon, or comb) prevents contact with the head. Take two separate height measurements on each child. Record height to the nearest one-fourth inch.

Some schools will find it convenient to measure children monthly or bi-monthly, while other schools will want a program more economical of time. It is recommended as a minimum procedure that each child is measured three times during the school year, in September, January, and May.

In so far as practicable, measure a child on or near the date of the month corresponding to his birth date. At the time of each measurement calculate the child's age. Do not consider age any more precisely than to the nearest month. That is, if a child is 4 years 8 months 5 days when measured, regard him as 4 years 8 months; if a child is

* The objective here is to reduce the child's clothing to a convenient minimum in order that the weight records will be as free as is considered expedient from augmentation and variation due to amount of clothing.

† An accurate scale printed on especially manufactured paper may be purchased from the Iowa Child Welfare Research Station, State University of Iowa, Iowa City, Iowa. Price $1.20.

‡ Specifications for such a headpiece may be obtained from the Bureau of Health Education of the American Medical Association, and an illustration will be found in *Univ. Iowa Stud. Ch. Wel.* 12, 2:109, 1936. (Succinctly, the shorter edges of two pieces of seasoned wood 7 inches by 5 inches are joined at right angles. Mounted within the 90° angle is a triangular strip of wood having an opening for insertion of the fingers. Many schools will find it possible to secure such an instrument through the co-operation of the manual arts instructor.)

** In anthropometric terms, the head should be oriented on the Frankfort Horizontal, *i.e.*, the tragus and the lower border of the bony orbit should lie in a plane parallel with the floor.

10 years 11 months and 21 days, regard him as 11 years.

HOW TO USE THE CHARTS

Figures 1 and 2 reproduce the charts from pages 2 and 3 of the booklets for boys (Figure 1) and girls (Figure 2). It is on these charts that the height and weight records of the individual child are registered. The charts are designed to portray both the status of the child at any age between 4 and 18 years and the progress of the child during any age period within the limits of 4 and 18 years.

Registering height and weight status—Assume that Figure 1 is to carry the record of Ted Stevens. Ted has just been examined; he weighs 44½ pounds, is 44 inches in height, and became 5 years of age yesterday. Refer to Figure 1: Locate age 5 along the top of the left-hand chart and 44 inches along the upper left-hand margin. Plot a point (place a dot) under the 5 and opposite the 44. Just above this dot on the HEIGHT portion of the chart write "44." Next, find age 5 along the bottom of the left-hand chart and 44½ lbs. along the lower left-hand margin. Plot a point above the 5 and approximately opposite 44½. Below this dot on the WEIGHT portion of the chart write "44½." With the completion of these directions, the height and weight status of Ted Stevens at age 5 years is fully registered. The status of Ted at other ages (or of any child) may be recorded in a similar manner.

Registering height and weight progress—Assume Ted is now 8 months older. His weight was taken at age 5 years 4 months but it was not possible at that time to get an adequate measurement of height due to a knee injury. The weight record was 46 lbs. Now, at 5 years 8 months, Ted weighs 48 lbs. and has a height of 45¾ in. Assume further that points representing weight at these two ages and height at the

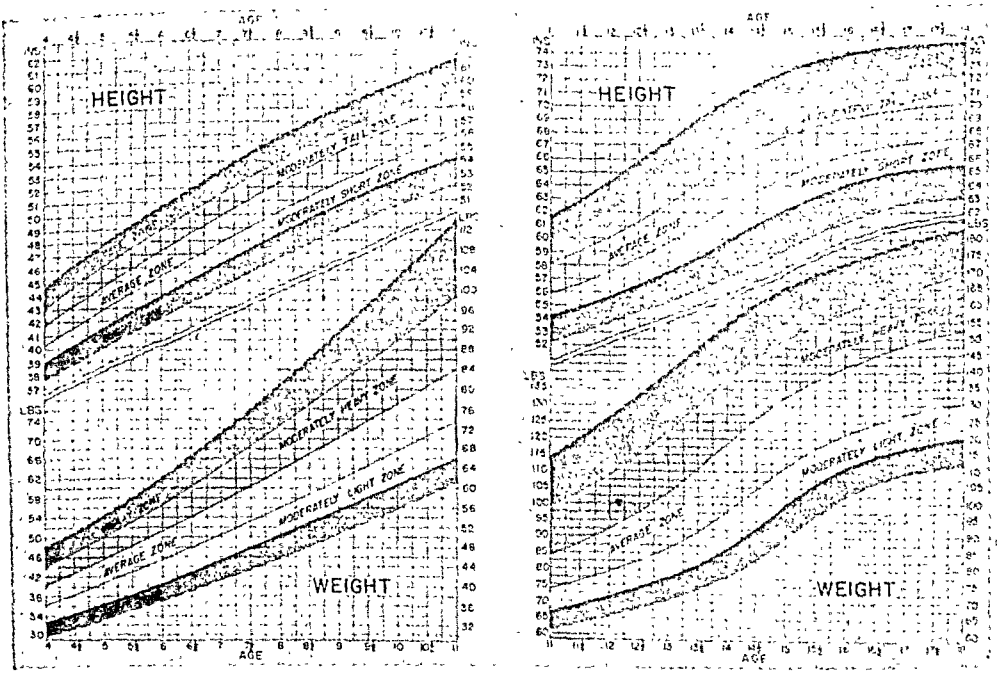


FIGURE 1—Reproduction of pages 2 and 3 of the "Physical Growth Record for Boys." Each chart is reduced from size 11 inches x 8 inches.

later age have been plotted on Ted's record (Figure 1). Having status materials at more than one age, it is now possible to derive curves of progress. Ted's height and weight progress over the age period from 5 years to 5 years 8 months is portrayed by drawing lines connecting (a) the two points on the height graph, and (b) the three points on the weight graph. Obviously by following the same general procedure, curves of progress may be obtained for any boy or girl over whatever period is desired within the age limits of 4 years and 18 years.

HOW TO INTERPRET THE CHARTS

After measuring a child and recording his or her measurements, one is confronted with the important problem of interpretation. What do the records indicate regarding the child's physical status and growth progress? What services will they perform in the evaluation of health?

Interpreting status—Ways in which the "Physical Growth Record" may be used for characterizing and appraising a child's status are as follows:

1. By following the recommended procedure of writing the measurement figures above or below each plotted point, there is available a ready description of any child's overall body size at each of the ages that measurements have been taken. For example, suppose Ted Stevens requests information on his size at age 5. His record describes him as weighing "44½" lbs. and as having attained a height of "44" in.

2. It will be seen that each of the HEIGHT graphs in Figures 1 and 2 depicts five normative zones—Tall, Moderately tall, Average, Moderately short, and Short. The zone in which a child's height point for a given age is located indicates his or her position with reference to the heights of others* of

* Explicitly, with reference to the heights of "white children of northwest European ancestry living under better-than-average conditions." This is discussed in a later section on "How the charts were obtained."

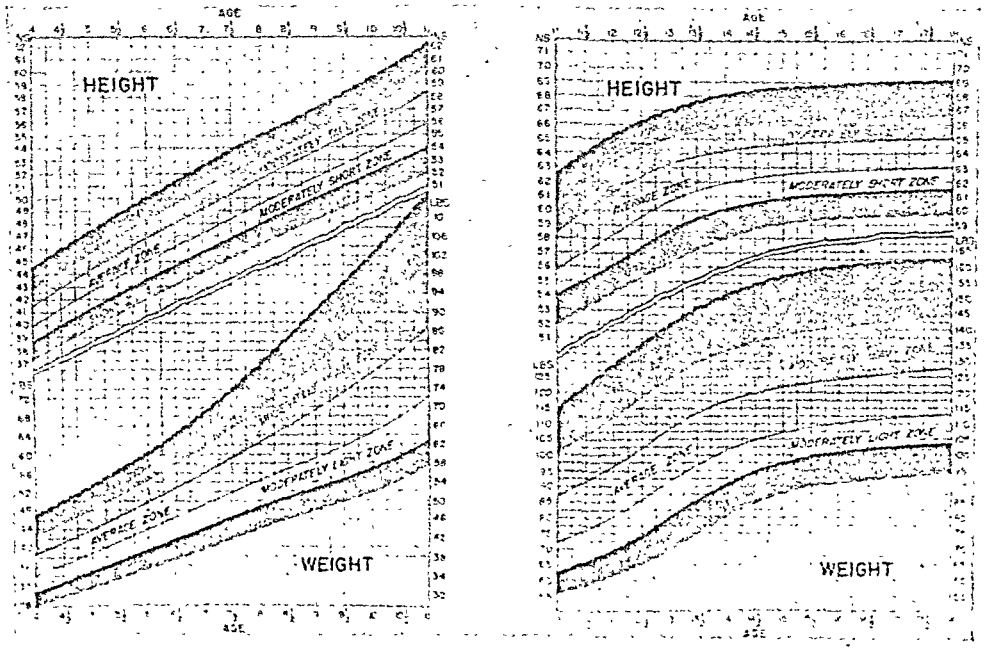


FIGURE 2—Reproduction of pages 2 and 3 of the "Physical Growth Record for Girls." Each chart is reduced from size 11 inches x 8 inches.

like sex and age. Shown on the WEIGHT graphs of Figures 1 and 2 are comparable normative zones designated Heavy, Moderately heavy, Average, Moderately light, and Light. The zone of location of a child's weight point for a given age similarly indicates his or her ranking in the distribution of weight at this age. The illustrative values given at age 5 show Ted to fall in the "Average zone" for both height and weight. Assume that Sam Weber and Doris Day also were examined at age 5: Sam's height was 47 in. and his weight 48 lbs.; the height and weight values obtained on Doris were 42 in. and 50 lbs., respectively. In relation to other children of like age and sex, Sam (referred to Figure 1) is "Tall" and "Moderately heavy," while Doris (referred to Figure 2) is "Moderately short" and "Heavy."

3. Whenever a child's height and weight points do not fall in corresponding zones (e.g., Tall and Heavy, Short and Light), there are two avenues of interpretation to be considered. That is, discrepancy or dissimilarity in zone placement (e.g., Moderately tall and Moderately light, Moderately short and Moderately heavy) may indicate normal stockiness or slenderness of build, or, may reflect an undesirable state of health. Suppose at the time of first measurement the height points of Bill Brown and Mary White each lie in the "Average zone," while the weight point for Bill lies in the "Heavy zone" and that for Mary in the "Light zone." Both children should be referred to a physician for examination. Mary may be a healthy girl of slender build or she may be "underweight" due to some unrecognized infection or nutritional deficiency. Similarly, Bill may be a healthy boy of stocky build or he may be "overweight" and in need of endocrine therapy, an especially prescribed diet, or a marked change in his daily regimen. The reciprocal roles of the "Physical Growth Record" and the physician will be readily appreciated here: The "Record" furnishes leads on possible deviations in health which serve to bring certain children to the physician's attention; the physician, in turn, utilizes his medical knowledge to determine which of the alternative interpretations of the "Record" appears the more sound.

Interpreting progress — Uses of the "Physical Growth Record" in describing and evaluating a school child's progress are:

1. The difference between a child's height measurements at two successive ages indicates the amount of augmentation or increase in height that has occurred during the interval. Likewise, by subtracting a boy's (or girl's) weight value for a given age from his (or her) weight value for a different age one obtains a figure showing the change in weight over the intervening period. On referring again to the illustrative materials for Ted Stevens, it will be found that during the age period 5 years to 5 years 8 months he gained 1¾ in. in height and 3½ lbs. in weight.

2. During childhood, the relation of an individual's height and weight curves to the appropriate normative curves affords information pertaining to satisfactoriness of growth. In the healthy child, over the period extending from age 4 in both sexes to age 9 for girls (Figure 2) and age 11 for boys (Figure 1), individual curves of height and weight run approximately parallel with their respective normative curves, i.e., individual height curves for boys follow the course of the boys' zone paths for height, individual weight curves for girls follow a course similar to that of the girls' zone paths for weight, and so forth. Consequently, if the height curve of Donna Davis (or Jim Jamison) falls along the middle of the "Moderately short zone" during the years from 4 to 7 and then tends abruptly toward

the "Short zone" (due, let us assume, to a gain between 7 and 7½ years of only ¼ to ½ in.), growth after 7 is "unsatisfactory" and warrants medical investigation. Although the weight curves of individual children are often less regular than their height curves, a weight curve which shows a downward dip (loss of weight), a plateau (failure to gain), or a sharp turn upward (excessive gain) should be considered suspect. The child should be weighed again the next day, or as soon thereafter as convenient: If the weight deviation is confirmed it should be regarded as sufficient cause for referring the child to a physician.

3. Beyond age 9 for girls and age 11 for boys, alignment of individual height and weight curves with the appropriate zone paths of Figures 1 and 2 permits sound appraisal of growth, providing allowance is made for variation in the timing of the so-called "adolescent spurt" or circumpubertal acceleration. There are wide individual differences in the age at which accelerated height and weight growth takes place; physically normal, healthy children in some instances will manifest more rapid growth by age 10 (girls) or 12 (boys), while in other instances rapid growth will not begin until after age 14 (girls) or 16 (boys).* Except for having to take into account this variation in age of the circumpubertal spurt, interpretations of physical growth progress are no different over the adolescent years than during the childhood years.

How does one make allowance for differences among individuals in the time at which the adolescent acceleration takes place? Assume that Nancy and Janice are practically alike in height and weight at each age from 4 to 9, but that Nancy begins rapid growth before 10½ and Janice not until after 13. Further, assume that Don and Dick consistently follow the course of their separate zone paths over the years from 4 to 11; but that Don begins rapid growth before 12½ and Dick not until after 15. Under conditions of normal, healthy growth, the height and weight curves of these four individuals will not follow the course of the zone paths within the age intervals 10 to 15 years (the girls) and 12 to 17 years (the boys). By ages 11 and 13 the curves of Nancy and Don respectively will be rising more rapidly than do the zone paths: As long as the height and weight curves for an individual are both following a like course, there is no need for concern. Over the years 10 to 13 and 12 to 15 the curves of Janice and Dick respectively will rise more gradually than do the zone paths: Again, as long as an individual is continuing steady growth in height and weight at his or her childhood rates, this growth should not be judged "unsatisfactory."

HOW THE CHARTS WERE OBTAINED

Method of construction—The charts (Figures 1 and 2) were constructed using percentile values obtained on a sample of the elementary and high school population. Specifically, the values used were the 1st, 10th, 30th, 70th, 90th, and 99th percentiles for height and weight at each successive annual age from 4 to 18. These six percentiles for each age and measurement were regarded as delimiting five zones.

The normative materials presented in the HEIGHT portions of the charts were drawn to the six series of height percentiles and are precisely described as follows: The "Short zone" is delimited by the 1st and 10th percentiles, the "Moderately short zone" by the 10th and 30th percentiles, the "Average zone" by the 30th and 70th percentiles, the "Moderately tall zone" by the 70th

* See Meredith, Howard V. Stature of Massachusetts Children of North European and Italian ancestry. *Am. J. Phys. Anthropol.* 24, 3:319–345, 1939.

and 90th percentiles, and the "Tall zone" by the 90th and 99th percentiles. Correspondingly, the normative materials presented in the WEIGHT portions of the charts were drawn to the six series of weight percentiles, the "Light zone" being bounded by the 1st and 10th percentiles, the "Average zone" by the 30th and 70th percentiles, and the "Heavy zone" by the 90th and 99th percentiles. In all of the graphs it will be seen that solid lines represent percentiles 10, 30, 70 and 90, while the two extreme percentiles are represented by dash lines.

A boy whose height point for a given age falls in the "Tall zone" will be recognized to have a height which exceeds that of not less than 90 per cent of the boys constituting the sample (i.e., he ranks among the tallest 10 per cent). In contrast, a boy whose height point falls in the "Short zone" obviously has a height less than that of 90 per cent or more of the boys making up the sample (i.e., he ranks among the shortest 10 per cent). A girl whose weight point for a given age lies in the "Average zone" has a weight which both exceeds and is exceeded by not less than 30 per cent of the girls' sample—she is of average weight in the sense of being among the middle 40 per cent of the group.

Source of data—Collection of the height and weight data from which the normative materials were derived took place during the years 1930 to 1945 * in the University of Iowa experimental schools, Iowa City, Iowa.† The subjects—there were between 100 and 200 of each sex examined at each year of age—were white children of northwest European ancestry living under better-than-average conditions from the standpoints of nutrition, housing, and health care. Explicitly: (a) over 90 per cent of the children were of northwest European ancestry, while only a scattering were of southeast European descent, and (b) approximately 40 per cent of the fathers were professional men (mainly members of the university faculty); 35 per cent business proprietors, managers, or skilled trade employees; 15 per cent farmers; and the remaining 10 per cent clerks, carriers, and semi-skilled laborers.

Are the normative materials presented in the charts appropriate for use in any North American school? More specifically, are they validly employed in schools whose pupils are drawn from the unskilled-laborer class, or from districts largely populated by families of Italian, Mexican, or Japanese ancestry? For purposes of growth and health appraisal, most school physicians and pediatricians consider it preferable to evaluate children of low socio-economic status in terms of norms obtained on groups for which nutrition and health care are known to be reasonably adequate. Charts based upon children representing a few other ethnic groups probably will be found desirable.‡ In the meantime, the presently available charts will be found of value with any group in evaluating growth progress.

A final word on the role of the particular school program here outlined. The reader is cautioned not to regard

* The inappropriateness of evaluating present-day children with norms based upon data collected earlier than the 1930's has been clearly shown. See Meredith, Howard V. Stature and Weight of Children of the United States. *Am. J. Dis. Child.* 62, 5:909–919, 1941; Meredith, Howard V., and Meredith, E. Matilda. The Stature of Toronto Children Half a Century Ago and Today. *Human Biol.* 16, 2:126–131, 1944.

† Some may question the extent to which norms based on Iowa children are suitable for use in other parts of North America. The evidence to date on this problem supports the view that the association between a child's height and weight and the geographic region in which he lives is so slight as to be inconsequential in the construction of school norms. See Meredith, Howard V. Stature and Weight of Children of the United States. *Am. J. Dis. Child.* 62, 5:927–932, 1941.

‡ See Lloyd-Jones, Orren. Race and Stature: A Study of Los Angeles School Children. *Res. Quart.* 12, 1:83–97, 1941; Matheny, Walter D., and Meredith, Howard V. Mean Body Size of Minnesota Schoolboys of Finnish and Italian Ancestry. *Am. J. Phys. Anthrop.* 5 n.s., 3:343–355, 1947.

the "Physical Growth Record" described in this paper as a sufficiently comprehensive anthropometric program to meet all school needs. This program is recommended for schools where it is not considered practicable to adopt a program calling for more measurements than height and weight. For schools able to carry a somewhat broader program the proposal developed by Stuart and Meredith is preferable.*

* Stuart, Harold C., and Meredith, Howard V. Use of Body Measurements in the School Health Program. *A.J.P.H.* 36, 12:1365–1386, 1946, and 37, 11:1435–1438, 1947. For an appraisement program still more comprehensive see McCloy, Charles H. Appraising Physical Status. *Univ. Iowa Stud. Ch. Wel.* 12, 2:126, 1938, and 15, 2:260, 1938.

Public Health in the Middle East

Plans for developing a health control program in the Middle East are being developed through the coöperation of a number of agencies. Under a grant from the Commonwealth Fund, Henry E. Meleney, M.D., of the New York University-Bellevue Medical Center of New York City is surveying the teaching needs for the American and French Universities in Beirut, Lebanon. Full-scale public health teaching will be provided by American University under the leadership of Dr. Zaken Shakhashiri, now training at the Johns Hopkins School of Hygiene, and with the help of the Rockefeller Foundation.

The Lebanese Minister of Health, Dr. Elias Khoury is planning with Dr. Bruce Wilson, regional director of the Rockefeller Foundation, for the training of Lebanese students in public health in the United States under Rockefeller Foundation scholarships.

The recent Cairo regional meeting of WHO disclosed that the physical and intellectual capacity of the population was being seriously undermined by the startling prevalence of infectious diseases. Oil interests also have felt the need of help with their public health and preventive medicine programs among their workers. They are providing funds for raising salaries sufficiently to hold men of ability in the medical school of American University.

At the same time, the Chief of State of Syria, General Husni Zayem, hopes to improve health and medical instruction at the medical school in Damascus. The dean of the medical school is taking part in some of the Beirut planning for improved teaching.

Techniques of Counseling in Regard to Health Problems*

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THE group consisted of very able persons engaged in many kinds of health education. They participated in recording, in discussion, and in spontaneous dramatization of interviews. It is difficult to summarize outcomes briefly as the chief value was in the sensitivity gained through consideration of concrete situations.

The "Discussion 66" technique was used to bring out everyone's questions and problems about health counseling.

The discussion of these questions and problems follows:

1. What is the aim of health counseling?

The end in view of health counseling is healthier persons. This end is achieved through changes in attitudes, a new orientation, a clearer idea of one's health potentialities and how to realize them. Counseling is a face-to-face relation in which growth takes place. It is an experience in which the child or adolescent obtains a clear idea of the best health possible for him and how to achieve it. Personal adjustment often results in desirable changes in the environment and affects group morale favorably. Better health also enables the child to profit more from all the experiences the school offers; it helps him to learn better. The effect of health counseling may even extend to the next generation through parents who understand themselves and have achieved the best health possible for them.

The role of the counselor is to facilitate the process of self-realization. Guided by a goal that is bigger than himself and beyond himself, the individual will use the resources within himself to attain his most acceptable self. This is a social self that contributes to the welfare of all.

2. How is counseling related to the total health education program?

Counseling is part of a larger whole, including group experience. In the classroom, and on the playground the teacher recognizes health problems, e.g., several accidents that have occurred, colds being spread unnecessarily. She brings these problems up for class discussion, solutions are suggested, and the best selected and carried out. Attitudes toward health are built through group discussion. Thus, counseling of individuals is done against a background of group experience; it uses various school and community resources.

Individual conferences may indicate a need for a more varied physical education program, ranging from a rest period to strenuous competitive games. More committees, small interest groups, more informal social experiences may be needed for the all-around development of some students. In subtle psychosomatic ways, success and satisfaction in social relations affect an individual's health. Educational and vocational de-

* Review of discussion at a Round Table before the School Health Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

cisions, attitude toward marriage and family life, feelings of inferiority and inadequacy, to some extent involve health factors.

3. What situations offer opportunities for health counseling?

The health examination and preschool clinic offer opportunity for counseling pupils and parents of young children; teachers recognize the need for counseling certain individuals in their groups. The first step in studying reading problems is to check on visual, auditory, speech, and other health conditions; home visits, interviews sought by parents and by children all offer opportunities for health counseling. The attendance officer or a social agency may bring health needs of pupils to the attention of the counselor. Parallel with the problem approach to health counseling, is the basic developmental counseling that helps every pupil to discover and develop his health potentialities. As counseling is always in a setting, it will vary with the type of school and community, personality and training of the staff, resources in the school and the community, and needs of the pupils and their families.

4. Who should do counseling?

Teachers, nurses, doctors, counselors, psychologists, psychiatrists each work on different levels of counseling. Teachers should always be brought into the picture; they have the advantage of the longest daily contact with pupils and the opportunity to observe them in groups; they can give them help at the psychological moment when they feel the need of it; they can offer "mental hygiene first aid." Nurses have more technical background for their counseling but leave diagnosis to the physician. Psychological counselors and psychiatrists work on a deeper level of psychotherapy. In situations in which there are no specialists, the teachers and principal establish a constructive, friendly relation with pupils and their parents and make a survey of local, state, and national resources on which they may draw for mental hygiene, health, social work, and psychiatric services.

5. What are the techniques of effective counseling?

The tendency on the part of many health workers is to give advice. This advice frequently does not "take." Counseling is not advice-giving. Instead of assuming the responsibility for solving parents' or pupils' health problems, the worker, through skillful counseling, should try to stimulate them to take initiative and responsibility. The short single contact often goes through three phases: (1) the counselee expresses freely his thoughts and feelings and tries to think through the situation, (2) the counselor tries hard to understand; he reflects the counselee's feelings, raises questions that help him to clarify the situation, and interprets, if he feels that the counselee is ready for interpretation; (3) the counselee makes plans to carry out after the interview. At this stage the counselor may give information or make several suggestions, if the counselee has reached an impasse in his own thinking.

The counselor provides an atmosphere in which the individual feels encouraged and free to think through his problems of development. In this process parents and pupils grow in responsibility for self direction, in facility in self analysis, and in the ability to use resources within themselves and their environment to attain better personal and community health.

6. How can the quality of counseling be improved?

As most administrators, teachers, nurses, and school physicians have had no preparation for their counseling re-

sponsibilities, they need help in improving their counseling techniques. Some of them will take courses in counseling; others will attend workshops; all can be helped through inservice education. The case conference is a slow but sure method of increasing school people's understanding of pupils. All the persons in contact with the case to be presented should be present. In a rural or small school this might be only the teachers and principal and perhaps the county public health nurse. In another situation, not only principal and teachers of the pupil, but also the school nurse, physician, school counselor, psychologist, representatives from social work and youth serving agencies that have had contact with the case might be present. The conference in which information about the pupil and his family is pooled and interpreted and recommendations made becomes a learning experience for all concerned.

Care Widens Its Services

It is no secret that, in spite of constantly improving conditions in the world, there are still many persons in many areas whose food intake is on the malnutrition, and often dangerously near the starvation, level. In view of this, Care has issued a new "They Still Need Care" packet that has literally everything needed to make sure no one will pass by on the other side—case histories, newspaper articles, *Fortune Magazine* article, among them. Care now has a great variety of food and supply packages, including one for babies, for literally everywhere from Okinawa to Greece and Cyprus. And on the theory that "man does not live by bread alone" it also has a book program.

Included is an attractive pamphlet with photographs and pictographs telling something of the three year history and activities of Care. It started in 1945 as a coöperative effort of 22 agencies some of which have since consolidated; now there are 26. The first package was delivered in France in May, 1946. As of October 31, 1948, more than 6,000,000 packages had been delivered (now well over 8,000,000). Plans are under way to extend operations to China, perhaps by the end of 1949.

This kit should be widely distributed. It is available from Care, 20 Broad St., New York 5.

Progress Report on Hospital Survey and Construction Act*

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TWENTY-SEVEN months ago the President of the United States affixed his signature to a health bill that was unique in the history of this country. This was the Hospital Survey and Construction Act, Public Law 725, 79th Congress. This was a basically new and different type of health legislation which highlighted close coöperation between the federal government, state governments, non-profit organizations, and local communities. The act recognized hospitals as being a basic necessity in our public health structure, and outlined a plan for careful surveys of need to be followed by federal financial assistance in the construction of new hospitals and health centers. It is our purpose today to appraise, and likewise to praise, the accomplishments of the several states in this program to date.

THE PROBLEM

In viewing the accomplishments of the hospital program to date, it is well to look first at some of the problems with which the states were faced in the very beginning. I believe one of these might be called the psychological adjustment. In no previous program have the states been called upon to coöperate so closely with state and local hospital associations and with private non-profit associations in local communities. It was necessary to acquire new viewpoints and to establish rapport between the state governments and local community organizations.

The legal requirements of the federal act were rather formidable in most states. In some states, as many as three different types of new legislation were required. These were (1) legal authority to make the surveys; (2) legal authority to engage in the program as a whole, that is, to receive money and to pay it out and to employ staffs; and (3) legislation authorizing standards of maintenance and operation for hospitals receiving federal aid. (The act provided that this last legal requirement must be met by July 1 of 1948, but, as you know, the 80th Congress passed an amendment allowing a later deadline for this provision.) These legal requirements were fulfilled with remarkable dispatch, considering the magnitude of the problem. Advisory councils were set up in each state and wheels of administration began to turn.

One of the most important problems was the acquisition of new staffs of a type infrequently if ever before used in state health departments, such as, hospital administrators, architects, engineers, and so on through the long list of special skills required in the construction and operation of hospitals.

THE PROGRAM

The first big problem facing the states was the surveys of need. These

* Presented before a Joint Session of the Engineering and Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 12, 1948.

were in most instances undertaken promptly and the preparation of the state plan followed the initial survey. The quality of the state plans coming out of this program I believe has surprised everybody, including the states themselves. Each definable community throughout the country, for the first time in history, has had its hospitals evaluated from the standpoint of their abilities to perform services required in that community. It is of interest, but not surprising, to note that of the 1,024,286 hospital beds evaluated, 144,909 were found not to meet these specifications and were declared nonacceptable. The system of priorities devised by the states has proved to be a remarkably potent factor in allowing the orderly administration of the program without political or other interference. The logical and factual nature of the priority system almost entirely precludes favoritism in the selection of projects. Since the projects to be aided are selected on a logical and factual basis, the prevailing philosophy among hospitals and communities is not "how can we get hold of some of this federal money," but rather "do we qualify for assistance?"

Also for the first time, state plans have presented an accurate picture of what the real hospital needs are in the country. They have produced the following picture:

We have 474,000 non-federal general hospital beds, of which 397,000 are considered by the states to be acceptable; we need 256,000 additional general beds. We have 85,000 tuberculosis beds, of which 72,000 are acceptable; we need 84,000 additional beds. We have 429,000 mental hospital beds, exclusive of those in domiciliary institutions caring for mental defectives and epileptics. Of these, 382,000 are acceptable and 311,000 more beds are needed. We have 36,000 beds for chronic disease; of these, 28,000 are acceptable, 248,000 more such beds are needed. We have 468 acceptable health centers; we need an additional 1,853 such centers.

THE PROGRESS

It is now 16 months since the first state plan was approved. It is a little over 4 months since the last plan was approved. Of the 53 states and territories, all but one now have approved plans and have had allotments made for the fiscal years 1948 and 1949. You will recall that it was correctly anticipated that the first fiscal year of the program would be required for surveys and the preparation of state plans. Consequently, no construction funds or contractual authorizations were requested or made available by Congress during the first fiscal year of the program. The first allotment was therefore made on July 1, 1947. Let us now look at what has been accomplished in the past 16 months.

Thus far, i.e., up to October 29, 1948, 540 construction projects have been initially approved; that is, they have met the eligibility requirements and have only to raise funds, acquire site, and prepare plan and application before final approval. Of these projects, 135 have received final approval and are now under contract. The estimated total cost of all projects so far approved is $302,000,000. Of this, the federal share is $93,000,000, and the state or local share, $209,000,000. The value of the projects now under contract is $62,000,000, involving $19,000,000 of federal funds and $43,000,000 state or local funds, or both.

You will be interested in some further details concerning the projects thus far approved. Of the 506 projects initially approved as of October 1, 1948, 387 are general hospitals with 18,878 beds; 16 are tuberculosis hospitals with 2,019 beds; 26 are mental hospitals with 2,879 beds; 9 are chronic disease hospitals

with 642 beds; and 63 are health centers. The total beds contemplated in this group are 24,418.

Although Public Law 725 stresses the need for hospitals in rural areas and gives such areas preferential treatment, there was the feeling in many sources at the beginning of the program that perhaps the metropolitan centers would obtain most of the federal funds. Let us see now if this is the case. Of the 387 projects in the general hospital category, 211 projects with 8,807 hospital beds and with an average of 42 beds per hospital are in "A" priority areas; 74 projects with 441 beds and averaging 60 beds in size are in "B" priority areas; 53 projects with 3,295 beds and averaging 62 beds in size are in "C" priority areas. Only 49 projects with 2,465 beds are in higher than "C" priority areas.

As a further check on the rural nature of the proposed hospitals, let us look at the population of the several communities involved. Of the 308 new general hospital projects approved, 256 are in communities of less than 10,000 persons, and of these, approximately half—126—are in small towns or villages of less than 2,500 population. Only 52 projects are in communities of more than 10,000.

We are building under the program predominantly small hospitals. Thus, of the 308 new general hospital projects, i.e., exclusive of projects for making additions or alterations to existing hospitals, 184 are for hospitals with less than 50 beds.

SOME ADMINISTRATIVE PROBLEMS

After seeing what has been accomplished, it might be well now to look at some of the administrative problems which we have observed throughout the country. One of the most evident is that of inadequate state staffs. In those states that have been able to provide a comprehensive staff with all of the technical skills required, the program is reflected in an exceptionally high quality of performance. In a great many states, due to lack of funds, administrative staffs are small and inadequate to obtain the best results. These shortages, however, are gradually being remedied and the quality of administration is gradually improving right across the board.

The second problem, and probably the greatest—all things considered—is the present high cost of construction. One of the results of this situation is the tendency toward inadequate estimates on the part of local communities. Inadequate estimates produce a number of undesirable effects. They may mean the total abandonment of a project, the consequent waste of all the time and effort that has gone into the preparation of the project, not to mention the tying up of state and federal funds. The second result is the rejection of bids and another lengthy and time-consuming period in which additional funds are raised. The third result is the drastic curtailment of the original project, often to the detriment of the functional value of the institution.

In the light of experience gained on contract costs, I believe the state agencies are now in position to prevent many of the short estimates that have been coming in during the early phases of the program.

Another problem we have noticed is the delay in getting out plans and specifications after all other requirements have been met. This we have found is largely due to the large amount of work which most architects now have on their drawing boards. Every effort should be made to speed up this phase of the work.

CONTRACT COSTS

We now have enough experience behind us to have some idea as to the current cost of hospitals and health centers.

You will recall that the general construction cost index has gone up over 100 per cent since 1939. Hospitals, of course, are no exception. It has long been the general custom to think of hospital costs in terms of beds. This basis of estimate, however, has little or no value unless one is comparing identical hospitals, of which there are none. The cost per square foot is the only reasonable basis of estimating and of comparing costs. On this basis, we have found costs to be averaging about $18 per square foot, which includes the built-in equipment but does not include the movable equipment, architects' fees, land acquisition costs, and so forth. When these items are added, then the square foot cost averages around $22. There is a good deal of uniformity in these square foot costs throughout the country, although one does encounter spots or areas in which contracts or contract bids are considerably in excess. These areas can be explained on the basis of local situations, usually because there is so much work that contractors are not interested in the more difficult hospital jobs.

THINGS TO WATCH

It may be well at this time to point out certain pitfalls which may lie in the path of this program. One in particular is the possibility of lapsed funds. As you know, the contractual authority granted by Congress is not exercised until the final approval in Part IV is signed. There is, therefore, the danger of lapsed funds in the first year's contractual authority. Each year's allotment is, as you know, effective for that and the following fiscal year. There are therefore but 8 months left in which to exercise the contractual authority granted in the fiscal year 1948. Eight months is a relatively short time in which to raise funds and prepare plans and specifications. It would be wise therefore to consider lower priority projects without further delay, if necessary, to obligate 1949 allotments.

Health of San Francisco Chinese

The San Francisco City-County Health Department has recently analyzed some vital statistics for its 20,000 Chinese, who make up the largest Chinese population in the United States. Among the facts revealed by the 1948 figures are:

The pulmonary tuberculosis death rate for Chinese is 85 per 100,000; for the entire city, 35.1. But in 1931 the Chinese rate was nearly three times as great, 236.6. The Chinese suicide rate is 80 per 100,000; for the entire population, 23.8. The infant mortality rate among Chinese, 22.1 is lower than the city-wide rate.

In 1948, 63 per cent of Chinese births were to mothers with less than two year's residence, as compared to 33 per cent in 1947 and 10 per cent in 1946.

The Hospital Survey and Construction Program*

Environmental Sanitation

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ENVIRONMENTAL sanitation problems in today's national hospital program are a direct challenge to the public health engineers in this country. Before discussing the question of environmental sanitation in the hospital and the possible approaches to the problem, let us consider for a moment the magnitude of the task. It may be somewhat surprising to some that the "hospital industry" is one of the ten largest in the nation from the point of view of personnel employed, services rendered, and purchasing power. It represents an investment of approximately 6 billion dollars with expenditures amounting to some $2,400,000,000 per year. The 6,173 hospitals provided hospital care for approximately 18,000,000 individuals (16 per cent of the population) during the past year and employed some 900,000 full-time employees. Surely, an industry of this size having a direct relationship to the immedate welfare of so many individuals not only deserves but demands every assistance in order to achieve its ultimate goal—improvement of patient care. It is one of the few activities in which it is possible for the engineer to be identified with the care and treatment of the ill and infirm. Practically every other program with which he is associated is in the field of preventive medicine. It has been pointed out that the national hospital program should prove to be an effective instrument in breaking through the barrier which exists between the fields of clinical and preventive medicine. It will provide a mechanism whereby the workers in the field of public health may clearly demonstrate the benefits of their work.

The philosophy of those concerned with the administration of the Hospital Survey and Construction Act, requires the full use of the knowledge and techniques of the public health engineer to achieve complete success in the program and its ultimate goal—improvement of patient care. Thus, added responsibilities are being thrust on the profession for the solution of the environmental sanitation and related problems in our individual hospitals. The Act provides that the individual states (at their discretion) must establish minimum standards for the maintenance and operation of hospitals which receive federal aid. At the moment, all states with one exception have passed licensure laws or their equivalent empowering the state agency to proceed with the development of minimum standards and the licensure of the hospitals. In most instances, these laws have been extended to include all hospitals and related institutions, such action being entirely logical

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and justifiable. In the development of the minimum standards, those relating to the physical plant constitute a most important part and are of primary concern to the engineer.

There are two fundamental questions which have to be answered before an intelligent approach may be made to the problem of environmental sanitation in hospitals. First, what are the specific problems to be met? Second, how can they best be handled? A review of the licensure regulations of the states shows that the basic minimum standards relating to sanitation have been covered. Many desirable features have been omitted simply because they could not, at the present time, be considered as minimum requirements. Nevertheless, the more progressive hospitals are interested not only in achieving compliance with the minimum standards but in surpassing them, and it is in this field that a real service may be offered to both the hospital and the patient. This involves the extension of the engineers' activities into areas with which he has not been too intimately concerned in the past but which are related to the environment of the hospital.

In the limited time available, let us look at certain of the sanitary problems from the viewpoint of the hospital needs and the benefits which result from attention given to the sanitation aspects involved. For example, sanitary considerations alone may dictate a choice between two sites. One specific instance is recalled where two sites were under consideration, both satisfactory, with the exception that only one was served by the municipal water and sewer system and the other was not. The latter site had special appeal to the hospital board in that it was to be donated to the hospital. An engineering study soon revealed that the cost of installation of a water supply and sewage treatment plant and the continuing operational costs would more than offset the saving in site cost. The hospital board wisely made the obvious selection.

In cases where sanitary facilities must be provided to serve an individual hospital, they should be designed and operated in accordance with the standards of the respective state health departments. As a rule, the systems have followed the general pattern quite closely. Nevertheless, there is a question as to whether the highly infectious character of hospital sewage may require additional treatment beyond that given to ordinary domestic sewage.

Preliminary studies of a sewage treatment plant serving a tuberculosis institution indicated that the tubercle organisms were capable of surviving the treatment process which consisted of primary sedimentation, biological treatment, and secondary settling. The studies indicated that final chlorination of the effluent, in the neighborhood of 20 p.p.m., was necessary to destroy the tubercle organisms. The proportionately high periodic concentration of laundry wastes in the hospital sewage may upset the biological balance in the treatment process. One instance was observed where a trickling filter had been rendered completely inoperative by the coating of the rock with insoluble soap curd deposited by the laundry wastes.

It is obviously ridiculous to protect the water supply from its original source to the building and then to subject it to various hazards of contamination from a poorly designed and installed plumbing system. Field studies have proved conclusively that it is not uncommon for negative heads and vacuums to occur in the building water distribution system as a result of breaks, shut downs and drainages for repairs, or inadequately sized pipes. Strangely enough, few plumbing codes have included provisions for the proper sizing of the distribution system which require consideration of the pressures available in the supply main, the

characteristics of the water from the standpoint of corrosion or caking of the piping materials, future installation of fixtures (a common occurrence in most hospitals), and the hydraulics of the system. Sole dependence cannot be placed on pressure alone to protect against backflow of waste material from plumbing fixtures or devices but it does minimize the hazard. In addition, adequate pressures are necessary for proper operation and the maintenance of the fixtures in a sanitary condition, and the reduction of noise caused by the flow of water in the system which is particularly objectionable from the viewpoint of the patient. A striking example in this respect was found in a hospital survey where no water could be drawn from a number of third floor fixtures when the washers in the laundry were being filled.

Since vacuums can and do occur, it is essential that the water inlets to the fixture terminate a safe distance above the highest possible water level in the fixture. In instances where this is not possible, backflow preventers must be used. These devices are mechanical and, therefore, subject to failure. Overhead drainage lines should be located so that leakage will not cause serious consequences. Such lines should never be exposed in food handling and storage areas. Sterilizers, dishwashing machines, refrigerators, food handling equipment, and similar devices should not be directly connected to the building drainage system because of the possibility of a stoppage in the drain resulting in the backing up of sewage or waste material. One other point peculiar to hospitals is the need for protection of certain types of equipment against possible contamination by the potable water supply. This necessitates the use of leak-escape proof valves on the various types of water-supplied sterilizers.

Unfortunately, too little attention is paid to the location and type of fixtures provided for the accomplishment of specific tasks in the hospitals. Inadequate handwashing facilities in patient and work areas may result in breaks of technique or unnecessary loss of time. These facilities should have the proper type fitting, wrist, elbow or knee action controls, to prevent the fixtures from becoming a vehicle for the transmission of pathogens. Proper location and numbers of fixtures will permit more effective use of the time of hospital personnel. Present accepted practice provides for the installation of lavatories in the patients' rooms and in a wall recess in the hall of each nursing unit. In this connection, consideration should be given in any hospital survey to the adequacy both in number and convenience of location of the toilet and rest room facilities for all personnel.

Food handling in hospitals is somewhat different from that in the conventional restaurant because of the transportation problem of the food from the kitchen to the patient which requires additional handling and resultant hazard of contamination. Because of the increased opportunities of contamination and the possible lower resistance of the patients to food infection, increased emphasis on proper food handling in hospitals is necessary. In using survey guides developed for other types of establishments, due consideration should be given to the special problems posed by hospital food service. Numerous instances exist where additions to the hospitals have overtaxed the food service facilities. In these cases, there is a real opportunity to devise procedures whereby the facilities may be used to better advantage pending the reconstruction or enlargement of the kitchen. The hospital should be informed as to the salient points to be observed in the design and construction of all food handling equipment prior to purchase. Considerable ingenuity will be required of the surveyor to adjust his recom-

mendations for improvements to fit the facilities available and the specific needs of the hospital. The problem of food handling and dishwashing in contagious or isolation areas must be given special attention.

Garbage and waste disposal may be handled in a number of different ways. The storage of these materials on the floor, facilities for transporting to point of disposal, and the method of disposal are all items which deserve attention. Improper facilities may result in nuisance conditions and provide breeding places for vermin. Special handling of infectious wastes such as those from surgery or isolation areas is necessary for the protection both of the hospital personnel and patients as well as those on the outside. It is a generally accepted fact, for example, that garbage from isolation areas should be kept separate from the other garbage and incinerated or boiled to destroy any pathogenic organisms present. In general, incineration of all garbage and rubbish is the most satisfactory method of refuse disposal. When this is not feasible, other methods such as the sanitary land-fill method might be used to good advantage. The advent of garbage grinders may simplify the problem of garbage disposal. With these devices, the garbage may be disposed of immediately, thereby eliminating the problem of storage and disposal.

No sanitary survey of an institution would be complete without consideration of insect, rodent, and vermin control. Proper screening and use of insecticides are necessary. Today, with the new insecticides available for use, instances of vermin infestation are inexcusable. Hospitals may either contract for services from a pest control operator or initiate their own program, in which case instruction of the personnel in the proper use of insecticides may be necessary. Our hospitals should be of rodent-proof construction. The elimination of rat harborages through proper construction of the facility combined with proper maintenance and operation will elminate the rodent problem. By extending this basic concept, would it not be possible to "vermin-proof" our hospitals through proper construction of the building and equipment?

The aforementioned problems have been recognized as problems of primary concern to the engineer. What of some of the other problems in the hospital which might interest the public health engineer? Housekeeping with its attendant problems of maintaining the hospital in a proper sanitary condition is one which should receive the attention it deserves. It would be reasonable to assume that the surveyor might make specific recommendations as to frequency and procedures to be followed in the cleaning of floors, walls, and ceilings. Improper methods will not only result in poorly cleaned floors and other surfaces but may result in damage to the covering. Cleaning procedures and materials should be adjusted to the surface being cleaned. For example, the cleaning of the various floor coverings, terrazo, asphalt tile, rubber tile, linoleum, cork, varies considerably.

The question of heat, light, and ventilation presents many problems which have not been satisfactorily answered in all respects. A critical study of the hazards of recirculation of air in the hospital from the viewpoint of transmission of infection should be made. While the use of ultra-violet irradiation and glycol vapors is still in the experimental stage and their general use has not been recommended, there may be special areas in the hospital where air disinfection may be indicated. The oiling of floors and oil treatment of linens and blankets might be desirable in the control of air-borne infections. This is particularly true in contagious areas such as tuberculosis wards. An added

advantage is that by the suppression of dust, housekeeping procedures may be simplified. One point to keep in mind, however, is possible fire hazard particularly in buildings of frame construction. Lighting relates directly to the comfort of the patient, prevention of accidents, and maintenance of proper sanitation in the hospital. Surveys should include a study of the adequacy of the illumination in the different areas with consideration given to the prevention of glare and the avoidance of excessive brightness ratios. Illumination and brightness meters can be used to good advantage in the survey. The use of color in the hospital on walls, ceilings, and equipment is directly related to the comfort of the patient. Certain basic principles have been established which should be familiar to the public health engineer.

There are two other fields of activity which are not normally considered to fall within the purview of the public health engineer. These are accident prevention and fire protection. Both are intimately related to the safety of the patient and hospital personnel. Accidents result in economic waste which the hospital can ill afford. Arrangements have just been completed between the American Hospital Association and the National Safety Council through which training materials and technical information will be made available to the individual participating hospital. The need for prevention of accidents in hospitals is so evident that little elaboration on the subject is necessary. Any survey of the physical plant would be incomplete without consideration of the question of fire protection. In many states, this is the specific responsibility of the fire marshal. However, the engineer should be in a position to assist in the enforcement and carrying out of fire protection measures, possibly as a representative of the agency having primary responsibility in this field.

It is recognized that this list of items of interest from the environmental sanitation aspects of hospital construction and operation is incomplete. Nevertheless, it may serve as a guide in rendering help and assistance to the hospital.

The objective of surveys of the type described is to secure necessary improvements. It is not possible to single out the physical facilities and environmental aspects and discuss them as separate entities. They are only some of the important facts relating to hospital operation and must be considered in the light of the overall needs of the hospital. In many cases, the reports on the results of the survey have included a multitude of recommendations for improvements which are beyond the ability or the financial resources of the hospital to carry out. The final result being that little is accomplished. The desirable approach involves having the survey team make a critical study of the hospital's needs and then establish a continuing program of improvement, with items relating to patient safety receiving first consideration. A report of this nature will be a useful tool to the hospital administrator and his board in planning and scheduling of work.

It would be well to stress the point that whenever possible all surveys by the state agency should be made in coöperation with the local health agency representatives. The local agency will be in a better position to render the follow-up services involved, such as schools for food handlers, inservice training program, collection of samples, and periodic check surveys. Where the administrator or other administrative official accompanies the survey team, they may be of mutual assistance to each other.

In conclusion, the challenge and opportunities of the public health engineer to render a service in the hospital field are real and pressing, and are most important in the total health program of the nation.

The Quality of Medical Care in a National Health Program*

A Statement by the Subcommittee on Medical Care

INTRODUCTION

IN October, 1944, the American Public Health Association officially adopted a general policy statement on "Medical Care in a National Health Program."[1] One of the three basic objectives recognized in the statement was: "Such a [medical care] program should insure that the services provided be of the highest standard and that they be rendered under conditions satisfactory both to the public and to the professions."

Throughout the entire statement, emphasis was placed upon the quality of the health services to be made available.

It is the purpose of this supplementary statement to present the essential components of medical care of high quality and the methods by which these standards can be approached in a national health program.

The quality of medical care depends upon more than intangible, philosophical attitudes or particular personality traits on the part of those who render services. More is involved also than the technical content of the individual practitioner's work—basic as this may be. A high standard of care includes very definite scientific and organizational elements which can be incorporated into planning and which eventually will submit to measurement.

Since standards of health service reflect the ever-changing social and scientific patterns of the times, there can be no permanency to any particular set of qualitative standards for medical care.[2] There is every reason to believe that scientific advances and progress in standards of living will take place in the future as in the past. A national health program must assure full freedom of experimentation and change in both the science and the organization of health service. It is recognized at the outset, therefore, that any concept of good medical care must be conspicuously dated.

SCOPE AND CONTENT OF AN ADEQUATE MEDICAL CARE PROGRAM

OBJECTIVES

The objectives of medical care in a national health program must include:

1. Promotion of positive health.†
2. Prevention of disease, disability, and attendant economic insecurity.
3. Cure or mitigation of disease.
4. Rehabilitation of the patient.

It is recognized that medical care is only part of a total health program.

* This statement has been prepared by the Subcommittee on Medical Care of the Committee on Administrative Practice as a contribution to current discussions of medical care in a national health program. The Subcommittee believes that particular emphasis needs to be placed on factors affecting the quality of medical service in order to insure sound planning. While the statement is focused on medical care in a national health program, the principles set forth are considered to be applicable to all types of organized medical care programs, including voluntary and public plans at the local, regional, state, or national level. Discussion and comments by interested readers are cordially invited.

† The Constitution of the World Health Organization defines positive health as ". . . a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity."

Thus, most measures for the promotion of health are broadly social or educational in character, relating to employment, housing, nutrition, economic and social security on the one hand, and to recreation and physical and health education on the other. Also, prevention of much illness, at least for water- and milk-borne and occupational diseases, can be accomplished without recourse to individual service by medical personnel. It is essential, however, that the medical care aspects of a national health program be planned with the total picture in mind. Such planning makes it possible to orient medical service not only toward treatment of disease but also toward promotion of health, prevention of illness, and rehabilitation of the patient in a social as well as a medical sense.

QUANTITATIVE ADEQUACY

"Adequate" medical care must meet both quantitative and qualitative standards. Quantitative adequacy involves both comprehensiveness and balance. This implies the provision of all services required to achieve the above named objectives, in proper amounts and with effective timing. Essentials for such quantitative adequacy include:

1. Participation of medical, dental, nursing, social service, technical, administrative, educational, and supporting personnel sufficient to provide the full range of modern scientific care.
2. Provision of care in home, office, clinic, health center, general hospital or specialized institution, according to the best interest of the patient.
3. Provision of drugs, appliances, laboratory services and other aids.
4. Application of all relevant services to illness, injury, defect, and maternity—and to preventive care for the apparently healthy.
5. Education of the public as to the wisest and most efficient utilization of all available health services.

It is recognized that services are frequently inadequate at the present time and cannot be uniformly provided for everybody, everywhere, when a national program is instituted. The policy must be accepted, however, of providing the maximum that is feasible through the use of existing resources, and of extending services as rapidly as medical and financial resources become available.

QUALITATIVE ADEQUACY

The components of qualitative adequacy may be considered as fivefold:

1. Able, well trained, and efficiently functioning personnel.
2. Facilities and equipment which meet high technical standards.
3. Health services which encompass the best knowledge of modern medical science, and which insure availability and continuity of care.
4. Adequate financial arrangements, making possible the timely provision of all indicated services, without economic deterrents for patients or practitioners.
5. Sound administrative organization and operation, designed to promote efficiency and economy of service.

Each of these factors is, of course, inseparably related to the rest. Effective health service requires competent personnel and facilities of high standard. Sound financing is a *sine qua non* of any successful program. Subsequent discussion will consider the organizational methods by which these five basic components may be related to each other, and to the achievement of the goal of high quality.

COMPONENTS OF GOOD QUALITY

PROFESSIONAL AND RELATED PERSONNEL

The quality of medical care is dependent on the competence of those rendering a highly personal service. Obviously, therefore, the standard of care in an organized program will reflect the individual abilities of the participating

professional personnel. Such professional competence, in turn, depends upon careful selection of trainees, adequate educational programs, and desirable patterns of practice. If, thereby, competent personnel with sufficiently diversified skills are available in adequate numbers and in equitable patterns of distribution, the first criterion of quality will be satisfied.

PHYSICIANS

Selection and Education

Pre-professional college education can be redesigned to prepare more broadly oriented students whose knowledge of the humanities and the social sciences will improve their later application of the natural and medical sciences.

Selection of medical students should be based increasingly upon objective appraisal of broad qualifications as suggested by the newer techniques of scientific testing,[3] and upon evaluation of applicants without bias on grounds of sex, race, religion, or nationality.[4] The impersonal—but nonetheless formidable—barrier of prohibitive student costs threatens to restrict the profession to members of upper income groups, unless increased financial aid is made available to students and to medical schools.[5]

Undergraduate medical education must be continually appraised in terms of the changing requirements of the times. The most pressing current need is for proper emphasis upon the interrelationships among the various academic departments,[6] and for production of physicians who are aware of the social as well as the scientific responsibilities of their profession.[7] Pediatrics, psychiatry, geriatrics, and preventive medicine all need strengthening in the curriculum. No medical student should be graduated without study of the psychological, social, economic, occupational, and other aspects of "total" patient care. No graduate should lack an introduction to the principles of medical care planning and organization. Such instruction is best facilitated when the school participates actively in organized community programs of health and medical care. A major role of the medical teaching center of the future will be found in its relationship to the regional health service network described below.[8]

Graduate education in medicine is currently characterized by an extreme unevenness of quality. Less than one-third of hospitals approved by the American Medical Association for intern and resident training are affiliated with medical schools. Wider affiliation of teaching centers with training programs of small hospitals could produce major contributions to the quality of medical service throughout the nation. Greater emphasis seems also needed upon the extra-hospital phases of medical education. The graduate should have experience in outpatient service, home care, social service, public health practice, rehabilitation, and rural and small community hospitals. This, too, may perhaps best be achieved within the framework of a coördinated hospital plan.*

Postgraduate education for practitioners of medicine is an important phase of quality of care. Programs for postgraduate education can be developed most effectively through: (1) special financial provision for postgraduate studies, and (2) coördination of teaching centers and outlying community hospitals in functional regional networks. Within such regional programs, consultants and instructors from the teaching centers can travel out for local meetings, clinics and ward rounds; practitioners in outlying areas can move to the regional centers for formal courses, train-

* Medical schools currently engaged in planning for such graduate education include Colorado, Medical College of Virginia, Michigan, New York University, Rochester, Tulane, and others. Descriptive literature can be obtained from the schools.

ing conferences and demonstrations.[9]*

The financial problems in medical education mark the limiting factor in the practical attainment of higher goals in both undergraduate and graduate education. Most university authorities and medical educators are now stressing the critical need for more adequate financial support of medical and related professional schools.[10]

Allocation of funds for education and training within the financial framework of the medical care program can do much to elevate standards of professional care. Special emphasis can be placed on the support of postgraduate education so that economic deterrents do not operate and teaching institutions are enabled to develop the needed resources. Funds might be particularly applied to training those classes of health workers now in short supply.

Such steps in themselves, however, could not solve the entire financial crisis in which medical education now finds itself. Carefully designed support to institutions and to students is needed on a national grant-in-aid basis.

Medical Licensure

The lack of uniformity in state licensure provisions and of sufficient reciprocity among the states has been a deterrent to the achievement of national standards or an improved distribution of physicians. In some states, rigid or unusual prerequisites for licensure prevent desirable flexibility and adaptability in medical education. Achievement by the states of greater interstate reciprocity and similar high standards of licensure, or common acceptance of the diploma of the National Board of Medical Examiners, would greatly ease this situation.

It has also been suggested that the qualifications of licensed practitioners be reviewed periodically in order to safeguard the quality of care provided. This proposal deserves further study and consideration.

Patterns of Medical Practice

The patterns of practice among physicians affect both the volume and the quality of the medical service rendered. It is a basic principle of planning for medical care of high quality that physicians and other personnel should be closely associated, operating together as a balanced medical team. The greatest single deterrent to good service is the isolation of the individual practitioner from his colleagues. The patterns of practice should, therefore, be such as to enable practitioners to utilize readily the skills of consultants and other specialized personnel, and to benefit from the stimulation of continuing professional contacts. They should have easy access to library and other educational resources, be free from the burden of non-professional chores, and have sufficient time and incentive to read, attend lectures, visit medical centers, and otherwise improve their knowledge and abilities.

Medical service of good quality is best promoted by the closest possible functional relationships between general and special physicians. The general practitioner can serve as the key person in the treatment of the individual patient, concerned with the total aspects of the case—medical and social—and freely referring the patient for specialty and consultant care when needed. Barriers to indicated referrals and financial irregularities in connection with such activity can be removed by sound administrative policy. This requires elimination of those financial factors which promote fee splitting and rebate practices on the one hand, and those, on the other, which deter the family practitioner from calling in a consultant because of additional cost to the patient or fear of "losing"

* Significant postgraduate programs have been developed in the regional plans of the Bingham Associates Fund based in the New England Medical Center (Boston) and of the Council of Rochester (N. Y.) Regional Hospitals.

the patient. Modification of the traditional fee-for-service method of compensating physicians is strongly indicated. Methods of remuneration should be such as to be equitable both to the general practitioner and the specialist, and to encourage proper referral. There should also be careful experimentation with full-time salaried consultants and with routine consultation procedures in selected circumstances.*

In clinics and hospitals, the goal of closer relationships between general and consulting physicians is approached by the creation of efficient referral procedures, definite appointment systems, interdepartmental conferences, and the like. With the receipt of complete consultation reports, the general practitioner can usually continue with the management of all but the most specialized therapeutic procedures.†

It is obviously impossible for rural areas and very small communities to support the full-time services of all necessary medical specialists. Improved general practitioner-specialist relationships are attainable through the regional organization of medical services. Under such a plan, physicians of smaller communities become functionally associated with specialists in larger centers. As a result, referral of patients is facilitated and there are more local requests for visiting consultants. In effect, the rural practitioner becomes a member of a regional "medical group."

Increased rates of payment for specialty service in an organized medical care program should, in the interest of quality, be limited to physicians who meet objectively established standards of special qualification. Overemphasis on American Specialty Board certification can be avoided if ample provision is made for acceptance of equivalents in training and experience, to be evaluated by competent professional councils. One approach to this problem is that of the Health Insurance Plan of Greater New York, in which specialists are designated on any of three bases: Board diplomas, teaching staff appointments, or individual qualifications.

The current practice of direct choice of specialists by the often confused patient represents an undesirable form of self-diagnosis and frequently involves much waste of time and money. Channeling of specialty referrals through a general physician or a specialist to whom the patient has been previously referred (including provisions for such referral in special cases by the medical administrator in the local area) would avoid many of the inefficiencies of unsupervised medical "shopping." Special procedures would, of course, be necessary for emergencies and for the somewhat different circumstances of pediatric, obstetric, and similar specialties where the patient can properly make a direct selection of the specialty.

Diagnostic aids—Modern scientific medicine requires that the able and well trained physician have access not only to consultants but also to the technical diagnostic and other laboratory procedures so essential to clinical accuracy. Despite the development of well equipped and well staffed laboratories in the better medical centers, many practitioners are not connected with hospitals; many have no ready access to private laboratories or are located in isolated rural and semi-rural areas. The office laboratory is no longer capable of supplying all the required aids to the modern physician.

A significant development would be the establishment of integrated diagnostic facilities throughout a state or regional area, available to all practitioners in the vicinity. Such diagnostic facilities might be best developed as part of

* Such as Caesarian section, amputation, etc.

† Efforts to enhance the prestige of the general practitioner have included establishment of General Practice Sections in hospitals and medical societies. A "specialty board" in general practice is also under discussion.

public health centers or community hospitals and clinics, and would serve their purpose most efficiently if correlated with the overall functions of public health agencies and regional hospital networks. This could effectively promote the development of proper diagnostic assistance for those rural practitioners whose small communities cannot support extensive laboratory facilities. Specimens, pathological tissues, x-ray plates and the like could then be sent to the coöperating district or regional centers, while periodic visits could be made to local communities by pathologists, radiologists, and associated technicians from the larger centers.

It is essential that a national health program include the services provided by diagnostic laboratories, and such facilities should be adequately reimbursed by the plan—unless established under separate public auspices.[11]

Group Practice—The efficiency and quality of medical service rendered by a coördinated group of qualified general physicians, specialists, and auxiliary personnel is being increasingly recognized. Group medical practice facilitates coördination of the personnel and facilities essential to medicine of high standard. It provides ready access to consultants and the technical services of trained auxiliary personnel, and permits full use of complex laboratory, x-ray, electrocardiographic and other diagnostic facilities.[12] The constant intra-group contacts in professional work are a primary stimulus to continuous education. Professional supervision of professional services can, moreover, be developed effectively in an organized group, while such quality controls are difficult to maintain in individual practice.[13]

Group practice is advantageous to the administration of a medical care program in a number of ways. More service can be rendered per unit of expenditure by groups than by individual practitioners, as a result of economies in organization of personnel and equipment. Overhead costs of operation are reduced. Administrative detail is simplified by the integrated structure of the service unit.

The effectiveness of the group practice method is further enhanced through the common use of a central well equipped facility—hospital or health center—as the base of operations for the group. Here all needed personnel and equipment can be concentrated for the most efficient service to the public. Wasted time and effort on the part of patients referred from one clinic or specialist to another can be avoided. Close relationships with public health and hospital services can be fostered. Wherever feasible, medical groups should be affiliated for teaching and research purposes with nearby medical schools.*

The very real limitations and possible abuses of group practice are not to be minimized.[14] Unless a broadly trained practitioner has overall responsibility for the patient, there is danger of overspecialization and excessive referrals within the group. Hurried and impersonal work should be avoided in group practice as well as in individual practice. Financial arrangements satisfactory to all group members are sometimes difficult to work out, as are methods of supervision and control. With sound organization, however, group practice can function to the decided advantage of both physician and patient.

A forward looking national health program should give every encouragement to the growth of group medical practice. Clear provision should be made for the participation of qualified groups in the provision of services. Such groups should receive payment at the same rates as non-group practitioners,

* For example, the New York University and Montefiore Hospital (Columbia University) units are affiliated with the group practice service of the Health Insurance Plan of Greater New York. The Hitchcock Clinic is similarly closely associated with the Dartmouth Medical School.

whether on a fee-for-service or capitation basis, the total amounts being determined by the range of services provided and the number of persons served. Any economies achieved by the group practice method should not be justification for a rate of payment to medical groups lower than that to non-group practitioners. Rather, such economies should result in improvements in the quality of service provided by the groups and in increased incomes for the physicians and other personnel associated with them. Medical groups should be free to decide their own internal methods of professional remuneration. Because of the intimate association of its members, a medical group is in an especially advantageous position to appraise competence among its physicians (and others) and to reward such competence in a fair and discriminating manner. With this desirable flexibility of remuneration, a group's internal arrangements can be made especially conducive to improvements in quality of care.

A national health program might well offer assistance in the form of grants to public and non-profit agencies and long-term loans for capital construction and equipment to such professional groups as give promise of increased efficiency, economy, and quality in the provision of services under the program.

DENTISTS

All of the principles enunciated above with respect to medical personnel are pertinent to the dental aspects of health service of high quality. Dental care should be included in the services provided in a national health program to the extent that available resources of dental personnel make possible. The current severe shortage of dentists and auxiliary dental personnel, however, necessitates a temporarily limited horizon for the provision of dental care to the public.[11] Current emphasis must be directed to preventive and protective dental care for children and to essential therapy for adults. Concurrently, a threefold attack on the overwhelming problem of dental disease in the nation can be made by: (1) training larger numbers of dentists and other dental personnel; (2) use of multiple chairs by dental practitioners and the performance of subsidiary dental functions by auxiliary personnel under professional supervision in order to increase the number of patients who can be served by a dentist and to achieve reductions in the unit cost of dental service[15]; and (3) increased research into the causes and methods of preventing and controlling the major dental disorders. Utilization of new types of auxiliary personnel capable of carrying out certain dental functions has been proposed many times in the past and is now receiving more favorable attention.[16]

Regionalism in health planning has the same application to dental as to medical practice, and the dental specialist should be an integral part of every comprehensive medical group, clinic, and hospital service.[17] Financial aid for education from public sources should include the professional dentist, the dental hygienist, and other auxiliary personnel—trained together for coördinated team functions.

NURSES

Services of professional and practical nurses form the third essential of the modern medical team. Nursing education programs should be planned in conjunction with known and predicted community needs for all phases of nursing service. The present great gap between needed nursing services and available nursing personnel emphasizes the importance of this consideration.

Education for professional nursing should be broadened to include more adequate academic preparation; experience in community, home, and small hospital nursing; and emphasis upon

the social and psychological aspects of patient care. Opportunity should be provided for the advanced training of needed supervisors, teachers, public health nurses, and specialists.

An excessive number of existing schools of nursing are low in student enrollment and affiliated with relatively small and isolated hospitals. Here the caliber of teaching is frequently poor and the demand for nursing service from the students is undesirably high. The quality of nursing care in general can be enhanced by greater concentration of professional nursing education in university-affiliated teaching hospitals with large enrollments.[17]

Opportunity should also be provided for adequate education of practical nurses. It is becoming increasingly recognized that planning for nursing education should take into account the need for nursing service at different levels in order to meet present and future demands for health services and care of the sick.[18]

While the present shortage of nursing personnel emphasizes the need for nurses' aides and orderlies to carry out routine mechanical duties, such allocation of duties is even more important from the viewpoint of increasing the efficiency and improving the quality of nursing service. Provision should also be made for the special nursing of single or grouped hospital patients whose clinical condition warrants such care. This would make it possible to curtail the wasteful use of private duty nurses; it would release many of these nurses for other types of service and would improve the quality of care by providing concentrated nursing care where it is medically indicated. In appropriate home care cases, nurses can be helped to provide more effective service through the use of trained and supervised housekeepers and "mothers' helpers."

State licensure for both professional and practical nurses is essential. The extent to which such licensure can be standardized, in ways similar to those recommended for physicians, will determine to a considerable degree the effectiveness of attempts to achieve a more rational distribution of nursing personnel among the states.

Standards for participation of both professional and practical nurses and of housekeeping aides should be established in a national health program. Home nursing and special duty nursing in the hospital should be paid for, but only when medically indicated. The inclusion of nurses and schools of nursing in the program of grants-in-aid for education and training is imperative if necessary improvements are to be achieved. Refresher and postgraduate education is as significant for nurses as for physicians and dentists.

MEDICAL SOCIAL WORKERS

The influence of social factors in the production of disease and in restoration of health is of great significance. No medical service plan can achieve high standards without the well integrated services of fully qualified medical and psychiatric social workers.[19] These workers play an essential role in determining the social factors which may affect the response of a given patient to illness and to medical care, and in assisting the patient to use the medical services of the community to achieve the optimum rehabilitation possible in terms of his physical and social capacities.

Social service should be utilized by clinics and practitioners as well as by hospitals and health agencies. The activities of the public health nurse and the medical social worker should be closely coördinated. The organized group practice of medicine affords the most practical opportunity for social work to permeate the day-to-day management of ambulatory and domiciliary medical cases.

MEDICAL ADMINISTRATORS

Good medical service depends constantly on the efficient, orderly, economical and resourceful management of the administrative phases of the program. Qualified professional personnel, however, are not necessarily experts in the field of medical, hospital, and public health administration.

The proper training of administrative personnel—both lay and professional—is as essential as sound preparation for any of the clinical specialties. Graduate courses in medical administration should be further developed, based upon a solid grounding in the health sciences and integrated with practical field training. The university schools of public health seem to be the proper places for the needed expansion of such training efforts.* A national health program should contain carefully formulated standards for administrative personnel, and should include such personnel in the program of grants-in-aid for education and training.

PHARMACISTS AND DRUG THERAPY

Modern advances in chemistry, pharmacology, and serology have produced an extensive armamentarium of therapeutic agents essential to medical care of high quality. To insure the successful use of these therapeutic agents in a national medical care plan, competent and scientifically trained pharmacists should be component parts of the medical service team, and should be active participants in the organized medical care program. With their coöperation, the evil of uncontrolled use of patent medicines and home remedies can be greatly reduced, and drug therapy more nearly limited to the utilization of ethical products listed in a professionally compiled formulary or included in one of the official pharmacopoeias. Good quality of care also requires rational and judicious use of all medicines. Multiple "shotgun" prescriptions should be avoided. The routine use in prescription writing of basic pharmaceutical compounds and non-proprietary names should be strongly encouraged.[20]

Administrative procedures which control the multiple abuses of drug therapy are essential to any medical plan of good quality. Payments from public funds should be limited to drugs provided upon prescription and should be confined to professionally approved items. Administrative and financial considerations require limitation of payment for drugs to preventive, long-term, and especially valuable and expensive medicinals.[11]

OTHER HEALTH PERSONNEL

Utilization of other professional health workers under competent medical supervision is essential to service of high quality. The full range of medical care today includes the services of the physical therapist, the clinical psychologist, and the occupational therapist, as well as the optometrist and the podiatrist. Each of these groups has a significant contribution to make in the treatment and rehabilitation of the patient. The importance of interprofessional teamwork and closer coördination of the activities of all types of health personnel cannot be overemphasized.

SECTARIAN PRACTITIONERS

Many factors have combined to encourage the appearance of large numbers of sectarian practitioners, quacks, and charlatans and their use in the provision of care to the American public. To the extent that these partially trained and untrained individuals render service to patients, the quality of the system of care degenerates. Factors which underlie the existence of such practitioners

* Organized courses in medical care administration are currently offered at the Schools of Public Health at California, Harvard, Johns Hopkins, Michigan, and North Carolina. Special training for hospital administrators is available at California, Chicago, Columbia, Minnesota, Northwestern, Toronto, Yale, and other university centers.

include: (1) shortages of medical practitioners, (2) maldistribution of professional personnel, (3) high cost of modern medical care, (4) inability of medical science to cope adequately with many problems of chronic disease, (5) failure of many practitioners to consider properly the emotional and social factors in medicine, (6) discriminatory practices which prevent minority population groups from receiving adequate medical services, (7) looseness of many state laws governing medical licensure, and (8) inadequacy of health education.

High standards of service in a national program require efforts to control the activities of sectarian practitioners by:

1. Elimination of all untrained practitioners, such as chiropractors, faith healers, naturopaths, and others, from participation in the payments for health services to individuals under the program.

2. Elevation of the educational standards of those groups now close to the concept of scientific medicine, as are certain groups of osteopaths, through financial and technical assistance to approved schools. This could make possible eventual incorporation of such personnel and their teaching institutions and hospitals into the regular ranks of medical personnel serving the public.

RESEARCH

A fundamental component of medical care of high quality is the constant and unfettered development of research studies in natural science, clinical medicine, social and economic aspects of disease, preventive methods, and administration.[21] The many unsolved problems in prevention and control of disease and in methods of medical care organization require the fullest possible research activity on the part of persons involved in the service program as well as those devoting full time to investigative work. A national plan for medical care should promote a better quality of services by providing opportunity within the program for professional and administrative personnel to utilize its operations and facilities for research purposes.

HOSPITALS AND RELATED FACILITIES

Able, well trained, and efficiently organized professional personnel can render services of high quality only when they and their patients have easy access to modern medical facilities which meet scientific standards and are efficiently coördinated for service. These should be developed through careful community and regional planning, and must be supported by greater public and private financing, with the goal of providing an adequate number of balanced and equitably distributed facilities.

HOSPITAL STANDARDS

Although existing professional associations have made real progress in elevating standards of hospital care, serious gaps still persist. Only two-fifths of all hospitals have the approval of the American College of Surgeons, and only one-sixth are approved by the American Medical Association for intern and resident training.[22] Proper standards and qualifications have been worked out in detail for very few of the special types of hospitals.[23] Uncontrolled and frequently inadequate proprietary institutions still exist in many communities—and indeed are increasing in some places for many of the same reasons that underlie the prevalence of quack practitioners and the use of patent medicines.

It is essential to the operation of a sound medical care program that careful standards for the approval of all types of health facilities be developed. The official health agencies of most states are now empowered to inspect and license general hospital facilities. The state agencies should supplement enforcement of licensure standards with positive efforts to aid the poorer hospitals in improving their facilities and meeting the conditions for approval.

Competent hospital consultant personnel are needed for this function. The private professional organizations should expand their activities in developing and promulgating general standards as well as special certifications necessary to the advanced educational and professional activities of the better hospitals. The role of the American Hospital Association in the formulation of the "model law" for state hospital licensure is an example of the responsible discharge of such professional obligations.

Where no licensure standards exist or where existing standards are not applicable or adequate, the administrative agency in a medical care program should formulate basic requirements for participation of hospitals.

REGIONAL COÖRDINATION

There has been extensive development of plans for the regional affiliation of rural, semi-urban, and metropolitan hospital facilities. The Public Health Service, the Commission on Hospital Care, various foundations and universities, and others have laid the conceptual groundwork for this regional approach to the many vexing problems of medical care, medical education, and hospital service.[24] This approach calls for the functional coördination of all health facilities in a region to form a network based on natural geographic lines and medical service areas. Outlying rural health centers and community clinics are related to small community hospitals in the more populous localities. These in turn affiliate with larger district hospitals, and all converge on the teaching institutions of metropolitan centers. Public health departments, nursing homes, special hospitals, and other facilities are integrated in the system at appropriate levels.

The network involves, as indicated previously, a two-way functional flow of medical services, professional trainees, consultants, diagnostic laboratory aids, and the like. In this way, the limited resources of rural and suburban facilities can be efficiently supplemented by the readily accessible services of district and base centers. Continual referrals, training, supervision, and technical assistance all serve to maintain a high level of professional quality throughout the region.[8, 17]

This principle of efficient regional coordination of medical and hospital services should be fundamental in the design of a national health program. Administration of the program should be decentralized to functionally sound regional areas and local health districts which take into account the natural flow of trade and medical service. Effective coordination of hospital regions and local public health districts could thus be implemented.

Once a national program managed to achieve the removal of financial deterrents to medical mobility within a region, any interested area would be better able to arrange the necessary service affiliations between metropolitan and local hospitals, between medical center specialists and small community practitioners, and the like. Funds allocated to peripheral communities would be available to pay for those laboratory, consultant, and other services obtainable only from the large centers of the region. Under a national plan, most or all residents of a region would be eligible for services at any level of the network, thus eliminating one of the most important impediments in current regional plans—the lack of adequate financial arrangements for purchasing the services available at all levels.

A national health program can assist teaching centers to assume their key rôle in the regional medical care system through educational grants-in-aid as discussed previously. Training stipends for professional and technical personnel would enable those in outlying areas to take full advantage of the educational

opportunities in the more highly developed hospital and related resources of the region. Grants-in-aid to health departments, universities, and other public and non-profit organizations should be made available for assistance in the planning and development of coördinated hospital and health center systems.

HOSPITAL STAFF

General elevation of medical standards requires the closest possible contact of all practitioners in the community with the hospital facilities that are available. Good care is impossible to provide in isolation from the consultants, laboratories, equipment, and other facilities of the modern hospital. It would seem desirable, therefore, to reverse the accustomed "closed staff" arrangements and allow all licensed practitioners to utilize the hospital, but they should be restricted to activities within their scope of competence and constantly supervised and aided in their work by the whole professional staff of the institution. This would contrast favorably with the present custom of forcing the least able, the least popular, or the late-arriving physicians into total isolation from the benefits of modern hospital centers. As more experience is gained with open staff organization, standards for hospital participation in the national program might reflect this principle.

Full-time Staff

A growing tendency is discernible toward the establishment of full-time hospital staff nuclei, whose salaried members constitute an effective group practice unit for patient service consultations, teaching, and research in the hospital. Many of the top ranking university hospitals of the nation have long maintained full-time medical staff personnel. This development serves to enhance the quality of hospital and outpatient care, and provides the affiliated part-time physicians with a source of valuable assistance. As Peters has pointed out,[25] more adequate public support of the beds utilized for care of the medically needy would enable hospitals to offer satisfactory salaries to qualified full-time physicians and thus greatly extend the scope of this movement. Affiliation of community hospitals with medical schools in regional programs would also stimulate this practice.

Even more effective would be the full-cost payment to hospitals for the care of the needy that would be made under a national medical care program. With cost reimbursements for all or nearly all patients, hospitals would be in a far better position to retain full-time staff, to support research and teaching, and to provide consultants and special services for affiliated outlying hospitals.

Specific provision should be made in the plan of payment to participating hospitals for the inclusion of salary funds for full-time staff members. This, together with the guarantee of hospital reimbursement for all or nearly all patients, would provide the financial basis for vastly improved hospital care.

Staff Organization

Continuous maintenance and elevation of standards within the hospital depend upon conscientious organization of the clinical staff and upon its educational and self-appraisal activities.[26] Recognized functions of good hospital staffs include regularly scheduled conferences, analysis of previous hospital experience, and review of problem cases and of unexplained deaths.[27] Chiefs of service can judge the general quality of their departments through such objective criteria as the number and type of consultations, frequency rates for certain categories of surgical and other therapeutic procedures, autopsy ratios, record keeping, incidence of preventable complications, utilization of laboratory services, and the nature and number of referrals to social service.

A useful device for the encouragement of high levels of staff performance is the so-called *medical or statistical audit* which has been used for many years by a few leading hospitals and is now coming into more general favor.[28] This is a periodic audit by the entire medical staff of the work performed in the hospital. The necessary requisite is comprehensive and uniform record-keeping on the part of the medical staff. On the basis of these records, statistical tabulations and analyses are compiled which show the morbidity and mortality experience of each service and each individual staff member during the period involved. Initial diagnoses and prognoses are compared with the results of hospital treatment. Such analyses, carefully made and interpreted, become the basis for self-education and improvement, for staff appointments and promotions, for evaluation of new procedures, and for the discovery of sources of poor work in the institution.

The quality of hospital care correlates directly also with the caliber and activity of the personnel conducting pathological and radiological services in the unit. Persons responsible for these technical specialties must be fearless and honest in their diagnostic work, if first-rate medicine is to be practised, and if unnecessary and unwarranted therapeutic procedures are to be minimized.

All such elements of quality in hospital service should be reflected in the standards and procedures set up under a national program for medical care.

GENERAL AND SPECIAL HOSPITAL RELATIONSHIPS

Technological advances in medical science and the unplanned development of community health facilities have resulted in an uncoördinated maze of chronic, mental, tuberculosis, communicable disease, maternity, and other special hospital facilities. Highest standards of medical care, however, call for the physical unification of special hospital facilities within the framework of the general hospital plant. If planned construction of this nature is not immediately feasible, the closest possible administrative and functional relationships should exist between the "parent" general hospital and subsidiary special institutions.[29] Within regional areas of service in a national program, special long-term facilities can be affiliated with general hospitals at appropriate levels.

Such coördination of general and special hospital facilities is essential if continuity of patient care is to be achieved in a medical care program. Proper medical supervision of nursing, convalescent, chronic, and other institutions by the active staffs of affiliated general hospitals is possible only in this way. The most economical use of all the physical and human resources of the various units of the hospital system is thus realized. Finally, financial and other deterrents to the easy transfer of patients from one institution to another can be overcome only when all facilities in an area are functionally coördinated and jointly participate in a single financial plan.

TRANSPORTATION SERVICES

A necessary component of a coördinated and comprehensive system of home, office, and hospital care is the provision of good ambulance service. The smooth functioning of the regional hospital plan also depends to a considerable degree upon the efficiency of the system for transporting patients, personnel, and diagnostic specimens.

The modern concept of ambulance service might well include provision of air transportation for patients living in remote areas, for those isolated by impassable road conditions, and for those requiring immediate care in a specialized facility. Such service should be arranged in relation to the regional hospital plan so that patients can be treated in the nearest facility competent to provide

the care required. The advantages of air transportation for rural and mountainous areas have never been fully investigated, apart from the extensive war experiences and the experiments in Australia, Saskatchewan, and a few other countries. The combination of outpost health centers containing the medical essentials, plus quickly available air transportation to fully equipped hospitals and medical centers, may serve to alter some current concepts regarding the best means for providing medical care to outlying areas.

It would seem essential to the goal of high quality that such services be included as rapidly as feasible in a national plan, following full experimentation in selected areas.

RELATIONSHIPS OF HOSPITALS AND HEALTH DEPARTMENTS

A recent statement of the American Hospital Association and the American Public Health Association has emphasized the advantages of joint housing and coöperative functioning of hospitals and health departments.[30] By such joint activity, the services of each can be strengthened, continuity of care can be facilitated, and the necessary rapprochement between preventive and curative medicine can be encouraged. With the increasing assumption of administrative responsibility by health departments for state and local operation of medical services—as urged in the 1944 A.P.H.A. Statement[1]—official health authorities are becoming more closely associated with hospital problems. A real impetus toward coördinated activities and joint housing can be foreseen in this connection.

The logical development of all aspects of hospital and related care leads to a broad concept of the community health and medical center, from which can emanate the fully coördinated and balanced health services needed by a local population. This involves not only the joint housing of hospitals and health departments, but acceleration of the discernible movement toward establishment of offices for private physicians and medical groups within the hospital proper. Thus, the role of the community hospital is strengthened as the total medical services of the area are organized around it.[31]

The community health and medical center can help realize many of the goals previously discussed: coördination of home, clinic, and hospital care; organized professional staffs with hospital offices; unification of inpatient and outpatient services; provision of diagnostic services for private practitioners; coöperative emphasis on preventive medicine and health education; and, finally, regional affiliations with outlying health stations and with metropolitan medical teaching centers. Through development of such community health centers, within the framework of an organized medical service program, the highest standards of patient care can be achieved.

SERVICES

A major criterion of medical adequacy is that the services rendered be comprehensive, balanced, and afford the patient a maximum continuity of care. In the previous discussion of personnel and facilities much has also been said of the content and organization of services. This section will further consider some of the special aspects of medical service which have a particular bearing on standards.

PREVENTIVE CARE

A most significant criterion of medical care of high quality is the degree of emphasis placed upon prevention of disease. The unfortunate separation of preventive and curative medicine—historically developed in the independent activities of public health officers and private practitioners—is incompatible

with the highest standards of modern medicine. "Prevention" no longer deals only with preventing the initial onset or occurrence of disease. It also means preventing the continuance or progress of disease which has already occurred; it means preventing the development or persistence of disability or invalidism, and of dependency, destitution, and other undesirable social effects. In other words, effective preventive service requires prompt, comprehensive, and continued personal care as well as community service of the kind traditionally associated with public health activity.

Public Health Services

A national health program should include provisions for the development of full public health coverage in every area and for the integration of medical services with the activities of public health agencies. Community organization of disease control measures applicable to large groups of people can reduce considerably the incidence of illness. Public health measures, if properly supported, can eliminate many of the preventable diseases now adding to the costs of medical care and public assistance. Provision of optimum community health protection allows the greatest possible application of medical care funds for diagnostic and therapeutic services in conditions not controllable by present-day mass methods.[32]

Preventive Medical Care for the Individual

Effective preventive service requires not only close coördination of the medical care program with that of public health agencies, but also strong program emphasis on individual health promotion and preventive care by practitioners. The effectiveness of the preventive work accomplished reflects in large degree the extent to which financial barriers between the patient and the practitioner have been removed. Good preventive care requires the elimination of special charges for initial or any other visits to the physician or clinic. It implies the geographic availability of services, as provided through coördinated regional networks and special incentives for rural practice. It makes essential the placing of administrative emphasis upon effective home and office care, diagnostic services for ambulatory patients, and simplification of administrative procedures in the provision and receipt of personal care.

The medical services of the program should also facilitate appropriate periodic health inventories of selected classes of individuals.[33] Provision should be made —in conjunction with public health agencies—for mass screening programs utilizing such newer techniques as the 70 millimeter chest x-ray and the microchemical diabetes test. Such health inventories are made feasible only by the removal of the financial barriers confronting the supposedly healthy individual and by the assurance of medical care for disorders which come to light. An essential component of these appraisals should be health guidance for the entire family.

SOCIAL AND ECONOMIC ASPECTS OF MEDICAL CARE

Medical service of the highest technical quality is frequently ineffective if rendered without regard to the social, psychological, and economic factors affecting the patient's condition. Good clinical care involves treatment of the patient as a "whole person," as an individual functioning in a definite social environment, rather than as an impersonalized example of an organic pathological disorder.[34] In the modern technical maze of diagnostic equipment, laboratory tests, special consultations, complex hospital routines, and the like, the tendency to lose sight of the individual patient is great. Comprehensive study of the patient is therefore neces-

sary, involving all aspects—whether related to home, occupation, income, diet, or other factors—which are relevant to the patient's illness and his restoration to health. Diagnosis and therapy should be planned in careful relation to the realities of the patient's socio-economic situation. Clinical services should be closely correlated with other programs of social welfare, including vocational rehabilitation, housing, recreation, and other services. Professional standards in a national health program should continually be concerned with the social factors influencing the patient's recovery and with the effective utilization of all resources, within medical agencies and in the community, for meeting his needs

The recent tendency to deal with the family as the unit of health care is an effective approach to the consideration of social and environmental aspects in medicine.[35] It represents one effort to recapture the valuable relationship that existed between the old-type family practitioner and his patients. Medical service teams operating in community health centers can deal effectively with the health problems of whole family groups and can promote hygienic habits through family health guidance activities. Significant developments of family health centers are under way in many countries, particularly England, South Africa, Canada, Sweden, and the Soviet Union.[36]

A national medical care program can promote the principle of family care in community health centers in at least three ways. Under the plan, the entire family group would be eligible for similar services. Guaranteed payments to practitioners and hospitals make possible the maintenance of health centers in any community—particularly if high priority is given for capital construction grants to these facilities. Finally, the regional pattern of organization can assure needed specialty services for small health units through their functional ties to nearby better equipped hospitals.

PSYCHIATRIC SERVICES

It is becoming increasingly recognized that the isolation of psychiatric from general medical services is mutually detrimental and hinders the development of services of high quality. The current interest in psychosomatic medicine indicates that the health professions are receptive to the possibility of bridging this gap. A national health program, properly oriented toward mental health, can provide the necessary leadership and material basis for achieving this purpose. It can stimulate the development of mental hygiene clinics and psychiatric units as regular rather than exceptional services of the general hospital. Through encouraging the inclusion of psychiatry in medical groups, clinics, hospitals, and regional plans, a national health program can promote the integration of skilled psychiatric personnel into all general health and medical services. It can help to educate physicians and other health workers to understand the importance of psychological factors in the management of their patients. Most important of all, it can bring about an extensive development of preventive psychiatry, utilizing services such as well baby clinics, school health programs, and all other community resources for the widest possible dissemination and application of sound principles of mental hygiene.

CONTINUITY OF MEDICAL CARE

High standards for medical service require more than adequate personnel and facilities. The patient must be guaranteed the advantages of continuous and interrelated care. Such care involves attendance by the same physician, dentist, nursing team, social worker, and so forth, throughout the course of the patient's management—as far as is practicable and desirable. It will be modified, of course, by the need for

consultants, referrals to differently qualified personnel, and freedom of choice and change on the part of physician or patient. Nevertheless, the principle of continuity of care should enable the patient to remain under coördinated management throughout all phases of treatment.

Continuous care must not only be well integrated but also complete in its various aspects. High quality of service is difficult to achieve unless domiciliary, ambulatory, and institutional care are all systematically developed. The full range of health service—from prevention through rehabilitation—must be integrated from the patient's point of view. Professional personnel must be free to render service wherever indicated by the clinical and social factors in the case. The highest standards are not achieved when the services of an organized program are limited to one particular type of care—for example, inpatient hospital services. Full continuity of care permits a medical plan to exploit the advantages of home care for children, the chronically ill, mild cases, and others who might benefit in selected instances.[37] It makes possible saving of hospital beds, reduction in length of hospital stay, easy transfer of hospital patients to convalescent facilities, and other service and administrative advantages. For rural and suburban areas this concept of continuity and completeness of care can best be realized through the regional network of medical facilities and functions described above.

CARE FOR CHRONIC ILLNESS

The principle of continuity includes the concept of service for long-term illness and disability. Good medical care does not stop at the provision of services necessary to control the acute episodes of disease. Scientific care of the patient includes chronic hospital, convalescent, rehabilitative, and nursing-home services wherever necessary.[38] Adequate programs of home care are vital in the proper management of many chronically ill individuals.

A recent joint statement of the American Hospital Association, the American Medical Association, the American Public Health Association, and the American Public Welfare Association, has outlined recommendations for optimal service for the chronically ill.[29] The statement recognizes that the care of long-term illness presents certain special aspects, but emphasizes that it cannot be isolated from general medical services without incurring serious danger of deterioration in the quality of care.

REHABILITATION

The vast experience of those responsible for rehabilitation of the wounded during the recent World War has renewed professional interest in this long neglected phase of medical care.[39] It is now widely recognized that treatment is not completed when the clinical disorder is eliminated or stabilized. Wherever possible the patient must be restored to a useful and self-sufficient place in society. This involves the coördination of medical, psychiatric, physiotherapeutic, educational, vocational, and social services. As in the case of services for the chronically ill, rehabilitation programs should provide for maximum continuity with earlier phases of care, and should be developed in close association and coördination with general medical services and facilities.

DISCRIMINATORY PRACTICES IN HEALTH SERVICES

The persistence of discriminatory practices in profesional fields continues to depress the quality of medical care.[40] Minority population groups are too frequently denied needed medical services because their members are refused equal opportunity for professional education and advanced training. Physicians and other professionals from these minority

groups are turned away from the very resources that would maintain the quality of their work: hospital appointments, medical society membership, referral arrangements, teaching affiliations, research opportunities, and the like. Patients, on the other hand, often find themselves barred from certain practitioners' offices, from entire hospitals, and from needed private accommodations—or else they are afforded cursory or substandard treatment that fails to satisfy their needs. Segregated facilities generally are below the standard maintained by other institutions in the community. The entire picture of discrimination in health service is inconsistent with the high precepts of medicine and serves to perpetuate some of the most glaring examples of low quality of medical care in the nation. A national health program should eliminate all barriers to needed service—social as well as economic and geographic.

ROLE OF THE PUBLIC

In developing a medical care program of good quality, the public has a vital role to play—both as responsible members of the community and as patients on the receiving end of the services. A high caliber medical service can be effective only if properly utilized. The recipients must be taught, through carefully designed programs of health education, when to seek medical care, how to use the various resources of the program, and how best to follow the recommendations and directions received from professional attendants. Appropriate educational activities in the program will stimulate public desire for high quality of service and will indicate the disadvantages of unnecessary demands for care. An intelligent, coöperative and sensitized population is quick to detect flaws in standards of service and can make real contributions to the program by timely and judicious comments on quality of care received.

As supporters of, and participants in, a national medical care program, the public has many opportunities for enhancement of service standards. Full lay representation on policy and planning boards and on advisory committees helps to insure equitable consideration of the patient's point of view. Active understanding of operations and procedures affords recipients a greater sense of personal identification with the plan, and is conducive to better public response. In this connection, trained health educators have a vital role to play in facilitating effective operation of the program.

FINANCING

An essential factor in medical care of good quality is that of sound and adequate financing—so designed that no economic barriers restrict the provision of needed medical services, and that fair and adequate remuneration is provided to all those furnishing the care. Good medical care, although purchaseable, is not cheap. As Sir Arthur Newsholme has stated, it should be considered worthy of generous support.[41] The financial savings to society produced by preventive care, early diagnosis, prompt treatment, and effective rehabilitation are actually far in excess of the original cost of such service—in terms of increased productivity and reduced public outlays for care of persons with chronic illness, disability, insanity, dependency, and destitution resulting from disease.

A fundamental principle of quality in medical care, then, is adequate financial support for service and administration. Meager financing can effectively limit the scope of service offered or demanded; can restrict the number and competence of participating personnel and facilities; and can postpone indefinitely the proper organization of available resources. As a first step in the achievement of high medical standards, the economic barriers between the best

of medical resources and their application to the requirements of optimum public health must be removed.

ECONOMIC BARRIERS TO MEDICAL SERVICE

The removal of financial deterrents in the provision of medical care has immediate and lasting effects upon the quality of that care. These include:

1. Encouragement of preventive services, since recourse to medical attention during health and early illness is no longer financially penalized.
2. More adequate use of laboratory, consultant, and institutional services, thus promoting full use of all modern scientific weapons in the war against disease.
3. Improvement of doctor-patient relationships, by the elimination of extraneous financial considerations from the consultation room.
4. Assurance of adequate income to professional personnel and of economic protection against the cost of illness to patients, thereby promoting better provision and reception of medical service.
5. Continuous support of medical education and research within the financial arrangements of the program.

FINANCIAL STABILITY

The 1944 A.P.H.A. Statement[1] recommends that "A national plan should aim to provide comprehensive services for all the people in all areas of the country . . . Services should be adequately and securely financed through social insurance supplemented by general taxation, or by general taxation alone. Financing through social insurance alone would result in the exclusion of certain economic groups and might possibly exclude certain occupational segments of the population." If such a program, providing service for the entire population, cannot be accomplished at the outset, the plan should at least aim toward the goal of universal coverage, and this goal should be achieved as rapidly as possible.

Adequate and stable financing is the necessary foundation for a medical care plan of sound structure. If social insurance is utilized, the maximum financial stability and adequacy is obtained by substantial supplementation with general tax funds and by coverage which assures the broadest possible spread of risk and the widest possible sharing of costs. Differential selection of the best risks by private insurance agencies (so-called "contracting out") should not be permitted because it would leave the national plan in an adverse financial position, greatly complicate administration and public participation, and expose the program to commercial exploitation.

Financial stability need not depend upon procedures such as "bárrier" or extra payments, curtailment in duration of service and the like, which restrict unduly the scope of medically necessary service. A nation-wide program, with resources organized for maximum efficiency of service and with payment methods which permit economy of operation, can achieve a highly stable financial basis. However, some limitations on drug, dental, hospital or related services will be necessary at least initially, until the medical and administrative resources of the nation are more adequately developed and more efficiently organized.

Whether the medical care program is financed through social insurance supplemented by general taxation, or by general taxation alone, it is recognized that additional support from general tax funds is necessary for construction of needed facilities, for professional education, for research and other grants-in-aid, and for similar functions. Such provisions of a national health program are essential to the achievement of a high quality of care.

ADMINISTRATIVE PRINCIPLES

The final criterion of medical care of high quality relates to the efficiency of administration in organized programs. The foregoing sections have outlined those elements of medical service which

constitute "good" health care. Such a structure neither develops spontaneously nor functions independently of expert supervision and direction. The efficiency of administration of medical care plans determines to a considerable degree the actual quality of the service received by the patients.

The purposes of effective medical care administration are: (1) to assure early, prompt and thorough service; (2) to maintain high standards; and (3) to guarantee continuity and consistency of care.[42] An administrative system that consciously strives to achieve these goals can take advantage of the now considerable experience that has been accumulated in this and other countries. A few of the administrative principles most directly related to quality of service might be briefly discussed. Many have already been implied.

POLICY AND PLANNING

Standards of service satisfactory to both the public and the professions can be achieved only when equitable representation of both groups is provided on all policy-making and advisory bodies. As a basic principle, the representatives of no one professional or economic group should have majority control of policy determination. Equitable voice should be given to consumers as well as providers of service, to farm and labor representatives as well as civic and industrial leaders, to dentists, nurses, social workers, and related personnel as well as physicians and hospital administrators. Whenever professional or technical matters are involved, decisions should be made by appropriate professional and technical bodies. The basic control of the program, however, must never be relinquished by the people themselves, acting through elected legislative representatives and the appointed administrative staff.

Those in charge of administration should be experts in this field, specially trained, adequately compensated, and chosen on the basis of a merit system. Competence in purely clinical or academic functions does not necessarily qualify a professional person for administrative responsibility. Quality of medical service and efficiency of operation can also be improved by the regular utilization of expert consultants in the various technical phases of the program.

Maintenance of high standards requires constant self-evaluation in the light of the rapidly advancing frontiers of medical and organizational knowledge. A national health program must engage in continuous appraisal of its own operations, and must promote all opportunities for controlled experimentation in both the science and the method of medical care. There exists currently a serious need for objective criteria by which the quality of service in an operating medical care program can be appraised.[43]

ADMINISTRATIVE SAFEGUARDS OF QUALITY

All administration should be in the hands of a single responsible agency at each level of government. At the outset a clear definition of function is essential for each of the administrative units, for all staff personnel, and for participating professional persons and institutions. The program should be decentralized for flexibility and feasibility of local application in providing and paying for services.

Eligibility requirements in a program of universal coverage would be limited to the single factor of medical need. If coverage is less than universal, the extent to which the program approaches the goal of complete national coverage will largely determine the degree to which restrictions on age, sex, residence or settlement, income, occupation and the like can be minimized.

In order to promote medical services of high quality, the use of the means

test as a criterion of eligibility should be eliminated in a national health program.[44] The personal indignity of financial investigations prevents many individuals in serious need of medical service from seeking care under means test programs. A basic requisite for good medical service is a healthy relationship between providers and consumers; recipients of charity medicine are not in a position to insist on a high quality of care.

Good medical care is not promoted when services are rendered on the basis of a double standard—one for "paying patients" and one for "charity cases." Recipients of public assistance should be included in the national medical care program, and the welfare status of such persons should be unknown to those providing the care.

The publication and periodic revision of *administrative procedure manuals* would help all participating personnel to understand and attain the desired standards of performance. These manuals should contain the administrative policies and procedures of the program and such professional routines as are promulgated by professional authorities and advisers connected with the plan.[45] If efficiency rather than inflexibility of service is to be attained, such manuals should be liberally interpreted and frequently reviewed.

Free choice and change of practitioner, medical group, or facility should be maintained, subject to geographical limitations and provisions for proper selection of specialists. Professional personnel should retain the right to accept or reject patients, with the provision that the professional participants in an area are collectively responsible for rendering needed services to all persons who do not elect or who are not accepted by a specific physician.

Various administrative devices are valuable in controlling abuses and promoting quality of care. The right of *administrative review* should be retained by central and local administrative jurisdictions; by this means, systematic checks on service records and billings can be maintained. This is especially necessary under the fee-for-service method of payment.[46] Professional review of case records selected at random has produced dividends in terms of high quality as, for example, in the various programs of care for crippled children.* The proper discharge of administrative responsibilities includes the right of the operating agency to ascertain the caliber of the services for which it is paying.

Automatic *statistical audits* of services and costs provide an accurate and impersonal check on the standards of service. Comprehensive systems for the tabulation and analysis of all operational data make possible the detection of those consumers and providers of service who deviate significantly from the average experience of the area in any given time period.[47] (Such deviations do not, of course, necessarily represent "abuses" detrimental to the program.) The various details of program operation can be studied and adjusted according to analyses of accumulated experience. Relative efficiency of different service districts can be compared. Experience with different methods of care, with different categories of illness, with different groups of beneficiaries can be appraised and applied to the development of better methods and procedures. Most abuses of the plan—either excessive demands for service on the part of patients or improper activities on the part of professional persons—can be identified and evaluated through the systematic application of statistical methods in administration. This technic does not penalize or inconvenience the great majority of participants because

* See procedures of the Crippled Children's Program, U. S. Children's Bureau, Federal Security Agency, Washington, D. C.

of abuses by a few individuals, as do such methods as review of service bills and proration of payments.

The requirement of prior *administrative authorization* for selected services of an unusually expensive or doubtfully efficacious nature is another useful control method. In this way the local area medical administrator, with the help of advisory bodies when warranted, may exercise some control over the economy and efficiency of the new system. Such required authorizations should be reduced to a necessary minimum and should never be allowed to interfere with the timely provision of needed medical care. High quality of care is promoted by the early and easy access of patients to medical attention—a consideration which outweighs in overall importance the relative infrequency of unnecessary demands for service. For this reason extra "barrier" charges for first visits, home visits, health examinations, and so forth, are seldom justified in the name of administrative control.

The *method of paying* participating professional and other personnel should be one which will encourage preventive medicine and a high quality of service. The fee-for-service method puts emphasis upon sickness rather than health and upon quantity rather than quality. It hinders appropriate referral of patients because it provides an economic incentive for the physician to retain his patient. This factor, in addition, seriously limits the effectiveness of regional hospital plans by impeding the referral of patients to district and regional centers for necessary consultant services. In an organized plan, fee-for-service is cumbersome, requiring itemized billing and auditing and thus a great deal of paper work. It is also the most difficult method under which to control use of service either quantitatively or qualitatively and is, therefore, the most expensive method to administer in a medical care program. Widespread use of unlimited fee-for-service might well make physicians' services so costly as to force economies in other essential health services such as hospital, nursing, or dental care. If, on the other hand, a ceiling is set on the pool of funds from which fee-for-service payments are drawn, excessive multiplication of services by a few physicians may serve to force *pro rata* reductions in all fees paid, thus penalizing the more conscientious doctors. Such a result has been seen in this country in the experiences of voluntary prepayment plans with attempts to provide payment for comprehensive physicians' services by fee-for-service. In Great Britain, under their former National Health Insurance program, physicians in some localities at first elected to be paid by fee-for-service, with the pool of funds limited to the same amount as was available under capitation. Some doctors provided excessive numbers of services; all fees were forced downward *pro rata,* thus placing conscientious doctors at a serious disadvantage. In the end, by vote of the physicians themselves, fee-for-service was abandoned. In other countries where fee-for-service has been retained, it has been found necessary to modify this method of payment through combination with capitation or basic payments in addition to proration.

Other methods of payment such as capitation, part-time or full-time salaries, either separately or in combination, provide steady incomes for physicians as compensation for their time and skill. Unlike the "piecework" fee-for-service system, these methods pay amounts which are not directly related to the number of services furnished to sick people. As a result, physicians paid in this manner have an added incentive to keep their patients as healthy as possible, and so to reduce total demands upon their time, especially for the care of sickness. These methods, therefore, encourage preventive

medicine and minimize incentives for unnecessary multiplication of services. In general, they place emphasis upon quality rather than quantity, and upon maintenance of health rather than cure of sickness, as the foundations of the doctor-patient relationship.

At the same time, capitation or salary, if not properly applied, can have certain disadvantages. Physicians may offer too few rather than too many services, or even be led to do indifferent or careless work. They may be tempted, under capitation, to accept larger lists of patients than they can care for adequately. These problems can, however, be solved with less difficulty than those arising from the fee-for-service system. In order to safeguard quality, reasonable limitations should be placed on the number of persons for whom physicians undertake to provide service. The fact that patients would have freedom of choice (and of change) among participating individual physicians and medical groups would furnish a desirable competitive element, far more conducive to high quality of care than is mere competition for large numbers of fees. In addition, good work can be encouraged through supervision of standards of care by appropriate professional committees, locally selected with the advice of participating professional personnel. By removing or minimizing the incentive for quantity inherent in fee-for-service, the program could make careful, deliberate work, rather than the multiplication of services, the principal motivation for a physician to improve his professional and economic status.

The most satisfactory application of capitation or salary is found in group medical practice. In a group, the compensation of each physician depends not only upon his own efforts, but also upon the success of the group as a whole and the judgment of his fellows regarding his contribution to the group's success. The reputation of the entire group is at stake in the satisfaction of patients with the services of all physicians in the group. Under these circumstances, every physician naturally desires to do well in the eyes of both his patients and his fellow-physicians. These motives, which arise from the coöperative (rather than competitive) atmosphere in group medical practice serve largely to offset any disadvantageous effects of payment for physicians' services through salary or capitation.

Whatever methods of compensation are used, highest medical standards require that full payment be made to medical groups, full-time hospital staffs, and other professional teams, in addition to individual practitioners.

Methods of payment to hospitals and other institutions are equally relevant to good quality. All experience indicates that the problems involved in paying for hospital service are complex and difficult. Payment on a per diem rate which is uniform for all hospitals in a given area leads to mediocrity by penalizing the hospital which, in an endeavor to improve services, raises its costs above the average. On the other hand, payment to hospitals on a cost basis, while it gives ample scope for hospitals to improve services, provides no incentive to increase efficiency and keep costs at reasonable levels. The so-called "point-value" system of Agnew[48] attempts to reward quality and thoroughness of service, but has proved unwieldy in the recent experience of the Saskatchewan Hospital Services Plan.[49] Perhaps the best approach would be to pay hospitals on a cost basis, with different ceilings for hospitals providing services of differing scope and standard. No system for paying hospitals is workable in the absence of good cost accounting on a uniform basis.[50] This entire subject requires further study and exploration.

Rates of payment — when flexible, adequate, and appropriately related to

skill, experience, and responsibility—are important elements in the attainment of high standards. Payments should be sufficient but not excessive, in order to improve professional standards and minimize financial competition among health personnel. Rates of payment need not be uniform nationally, but may take into consideration regional variations in standards, as well as varying degrees of qualification on the part of participating personnel. When rates of payment depend upon qualification as a specialist, technician, or the like, the standards for such designation should be objectively established in advance by competent experts in the particular field.

Collection of fees over and above payment received from the organized program for a particular service should not be permitted, if services of equal quality are to be rendered to all individuals and if economic incentives are to be divorced from professional judgments. This, of course, does not exclude payments for services rendered to private patients outside of the plan.

STANDARDS FOR PERSONNEL AND FACILITIES

Objectively determined *qualifications* should govern the participation of general practitioners, specialists, and other personnel. Physician participation should be restricted to those with degrees of doctor of medicine and licenses to practise medicine. Similarly, appropriate educational and licensure requirements are necessary for dentists, nurses, and auxiliary personnel. Standards for medical specialists should be established and administered on the basis of specialty board certification and evaluation by a medical council of the individual's previous performance, standing in the medical community, and demonstrated ability. In so far as practicable, nonmedical practitioners such as optometrists or podiatrists should not be entitled to payment for services except under medical supervision or upon medical referral.

Supervision of professional services by professional persons is essential if the best of care is to be provided. Satisfactory professional supervision has long been an established criterion for approval of hospitals, clinics, and other medical organizations. Visiting teams of specialists in outlying areas, senior staff supervision of hospital work, mutual supervision in group medical practice, professional control of technical and auxiliary services, periodic review of clinical case records by qualified authorities—all such supervisory activities are necessary components of a program of good medical quality.

Proper medical standards imply that each practitioner will have sufficient time to render adequate service to his patients. *Administrative limitations* on the total number of patients for whom a participating physician may obligate himself to furnish care are, therefore, in the interest of good medical service, and should be developed with professional advice and recommendation.

The plan should provide *special incentives* for the settlement of health personnel in rural, depressed, and otherwise undersupplied areas. Such incentives might include specially provided equipment and facilities, loans or grants for initial expenses during the setting up of a new practice, assurance of adequate annual income, functional affiliation with urban resources, and the like. Such special provisions are necessary if the quality of service in outlying areas is to approach the standards of metropolitan medical centers.[51]

Standards for the participation of each type of hospital should also be established by the administrative agency and evaluated periodically with the advice and counsel of appropriate technical groups. A major requirement for hospital participation should be the efficient

organization and operation of the professional staff. Coördination between inpatient and outpatient departments,[52] and between both of these and home care services, is another essential element to be considered in evaluating hospital services. Approval for participation in the national health program should be reserved for facilities meeting at least minimal standards, with hospitals accepted for complete or limited services on the basis of objective qualifications. Financial and technical assistance should be made available to non-approved institutions interested in meeting the standards of the program.

SUMMARY AND CONCLUSIONS

The quality of medical care neither deteriorates nor improves automatically with the mere establishment of a national program of medical care. The standards of service achieved by this—or any—program depend directly upon the human and material resources available, upon their organization for service, and upon the efficiency of their utilization. A poorly designed and badly operated program can—and would—render the provision of good health service impossible. On the other hand, the very nature of a nation-wide plan provides a hitherto unparalleled opportunity for the development of services which can satisfy the highest criteria of good medical care.

Medical care of good quality requires well trained personnel, adequate facilities, and a reasonably comprehensive scope of service.

Highest standards of medical care are achieved only with the wise and efficient organization of these resources. This key factor determines the actual effectiveness of the personnel, the facilities and the services.

Efficient organization of personnel involves group medical practice in health centers; of facilities—regionalized planning for coördinated hospital networks; and of services—continuity through the full range of health care. These emerge, therefore, as the organizational triad most essential to improvement of the quality of medical care.

When sound financing and competent administration provide the firm foundation for such an organizational structure, high standards of service are protected. When provision is made for generous support of education and research in the health services, the constant elevation of these standards is assured.

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POSSIBLE HAZARDS FROM THE USE OF DDT

A MINOR panic with respect to possible dangers from the improper use of DDT as a pesticide was created this spring as a result of an article by Dr. M. S. Biskind[1] and by a series of highly sensational broadsides in a New York daily.[2] The latter articles include a statement that "DDT the great bug-killer may turn out to be one of the most devastating biological weapons ever loosed by a people upon themselves." "DDT," it is said, "is slowly poisoning large numbers of Americans, especially children." Dr. Biskind is cited as having observed "hundreds of cases at first hand." Actually, Dr. Biskind says he has found 46 known cases of DDT poisoning *in the literature*; although he assumes that infection classed as due to "virus X" may be really DDT poisoning, and that more than 200 cases of this syndrome have occurred among people in whose homes DDT sprays had been used. Certain individual members of governmental bureaus gave out somewhat equivocal interviews which contributed to further alarm.

That DDT in certain concentrations must be toxic to man is, of course, obvious; and for over five years, P. A. Neal and his colleagues in the National Institutes of Health have been carrying out experiments, both with animals and human subjects, to determine tolerance limits of safety. Furthermore, the U. S. Public Health Service, the U. S. Department of Agriculture, and the Medical Departments of the Army and Navy have had the amplest opportunity to observe actual effects upon the large number of men who have been employed in the application of DDT on a vast scale and who have been exposed to hazards far beyond those which could conceivably affect the ordinary user.

Therefore, it was possible, very soon after the storm broke (April 1, 1949), for a joint group of experts representing the various agencies concerned to issue an authoritative statement on the matter,[3] after a conference at which the Agricultural Research Administration and Production and Marketing Adminis-

tration of the United States Department of Agriculture, the Office of the Surgeon General of the Army, the Food and Drug Administrator, and the U. S. Public Health Service of the Federal Security Agency, the Bureau of Medicine and Surgery of the Navy, and the Pan American Sanitary Bureau were represented.

This statement pointed out that the toxicity of DDT for man "has been given full consideration in making recommendations for its use. There is no evidence that the use of DDT in accordance with the recommendations of the various federal agencies has ever caused human sickness due to DDT itself. This is despite the fact that thousands of tons have been used annually for the past four or five years in the home and for crop and animal protection. However, minor toxic symptoms may be produced by kerosene and various solvents used in DDT and practically all other insecticidal mixtures.

"Statements that DDT is responsible for causing the so-called 'virus X disease' of man and 'X disease' of cattle are totally without foundation. Both of these diseases were recognized before the utilization of DDT as an insecticide." It may be added that the distribution of these diseases shows a striking lack of concordance with the use of DDT in various sections of the country, that the symptoms of disease alleged to be caused by DDT are generally of the vaguest character (intestinal disturbance, headache, sore throat, fatigue); and that in the few cases where serious results followed from gross carelessness (drinking a whole bottle of insecticide), there was frequently enough solvent ingested (kerosene, in the case cited) to cause fatal results by itself.

There is a further possible problem involved, however, in the fact (demonstrated by the U. S. Department of Agriculture in 1945) that DDT tends to accumulate in the fatty tissues of exposed animals and to be excreted in the fat of milk. DDT can sometimes be detected in small amounts in cow's milk following the use of this insecticide in dairy barns. In view of this potential hazard, the U. S. Department of Agriculture had recommended on March 24 that DDT should not be used in dairies.[4] In April it urged[5] that "this insecticide not be applied to animals producing milk for human consumption. In the light of current information the Bureau also advises that safer materials be used for insect control in places where the milk might be contaminated, such as dairy barns, milk rooms, rooms containing dairy feed, or in similar situations on the farm. Nor should DDT be used for fly control in milk-processing plants. Further investigations are under way to determine whether DDT carefully applied in dairy barns and other situations mentioned can be used without causing significant contamination of the milk." It would seem desirable to obtain more extensive data as to the actual presence of DDT in milk by methods now available[6]; but, all in all, the situation seems to be well in hand and the public adequately protected.

The writer of this editorial is reminded of the controversy which took place some years ago with regard to the use of tetra-ethyl lead in gasoline. There was a real menace here and so many serious cases of poisoning occurred in the plants where tetra-ethyl lead was prepared that the product was voluntarily withdrawn from the market, pending studies by a board appointed by the U. S. Public Health Service. These studies indicated proper safeguards (such as the warning signs still posted at every filling station); and the application of these safeguards has made the use of this poison possible without any threat whatever to the public health. In the case of DDT most of the necessary data are already in hand. The use of this substance in dairy processes may properly be limited for the present;

but there is no scientific evidence to indicate the need for other restrictions (except those already in force).

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ADVANCES IN ANTIBIOTICS RESEARCH

THE second national symposium concerning recent investigations in the field of antibiotics was held under the auspices of the Antibiotics Study Section of the National Institutes of Health in Washington, D. C., on April 11 and 12. Because of the importance of antibiotics in the public health program, the results of this conference are of importance to all of us.

Eight papers were presented on streptomycin, dealing with chemical methods of assay, the development of resistance, and the effect of the anionic portion of the molecule of streptomycin and dihydrostreptomycin on the development of resistance. Another series of reports was presented on synergism, resistance, and the therapeutic use of antibiotics. In this group of communications, some of the pharmacological properties and comparative activities of the newer antibiotics, actidione, polymyxin, aureomycin, chloromycetin, and bacitracin were discussed.

The intensive search for antibiotic substance was demonstrated in the evening session of April 11, when 12 papers were presented describing new compounds of this type. The new antibiotic, borrelidin from a streptomyces species, was described. Antibiotic substances from the sweet potato, the banana, the Indian carrot, hops, and seed plants were reported. Two antifungal agents, one from subtilin broth, the other called "xg" isolated from a streptomyces species, as well as the most recent discovery of Waksman, "Neomycin," were described in detail. A variety of studies were presented on the polypeptide antibiotics, particularly bacitracin, polymyxin, circulin and subtilin, none of which, incidentally, have yet been modified sufficiently to obviate the inherent toxicity of these drugs. It appeared to be the consensus of opinion that the polypeptide antibiotics are inherently nephrotoxic, and that their usefulness for parenteral administration can probably be answered only by a modification of the molecule.

The highlight of the symposium was a series of 17 papers describing the usefulness, pharmacology, physical and chemical characteristics of aureomycin and chloramphenicol. These two drugs, which are now available on the market, are the first antibiotics demonstrated to be effective against certain of the rickettsial and viral diseases. Chloramphenicol is the first major antibiotic to be synthesized on a commercial basis. The method of synthesis and the structure of this drug were described during the symposium. It was shown to be useful in the treatment of Rocky Mountain spotted fever, scrub typhus, typhoid fever, brucellosis, Gram-negative bladder infections, and primary atypical pneumonia. Aureomycin, on the other hand, appears to be a much more complicated compound, and although prepared commercially as a crystalline drug, it has not been synthesized. Both drugs are used orally rather than parenterally. Aureomycin was shown to be useful in the treatment of Rocky Mountain spotted fever, typhus, scrub typhus, primary atypical pneumonia, staphylococcic, streptococcic, and pneu-

mococcic pneumonia, brucellosis, and certain staphylococcic infections. During the discussions it became clear that an even broader field of usefulness for this drug is possible, since evidence appeared to be accumulating that aureomycin may be useful in the treatment of infectious mononucleosis, certain types of syphilis, lymphogranuloma venereum, and granuloma inguinale.

It is the function of the Antibiotics Study Section of the Division of Research, Grants, and Fellowships of the National Institutes of Health to promote, develop, and correlate research in the antibiotics field, and, during the past two years, considerable sums of money have been granted to individuals throughout the country to make it possible for them to continue studies on antibiotics. Investigations in this field have moved rapidly, and since it is difficult or impossible for the national societies to sponsor broad symposia exclusively for antibiotics, and since it is most important that the recent advances in antibiotics be brought to the attention of those vitally interested in this field as promptly as possible, it has been planned by the Antibiotics Study Section to sponsor symposia on antibiotics research at periodic intervals in the future.

TRYPANOSOMIASIS

THE continent of Africa now represents one of the major hopes of the world—so far as the development of new natural resources is concerned. There is much yet to be done, through planning and conservation, in Asia, in South America and even in the United States. Africa is the only continent which many observers believe has truly vast potentialities waiting to be tapped. How sound this view may be, only time can show. For Belgium, France, and the United Kingdom, the problem is certainly of pressing importance.

The chief obstacle to development in many areas of Africa is a public health problem—that of trypanosomiasis. Half a dozen different species of trypanosomiases are involved and they are transmitted by as many or more species of biting flies (most often of the genus *Glossina*). Parasites, natural reservoirs and insect vectors vary widely in different regions; and control methods must vary correspondingly. In general, the basic reservoir is to be found in the wild fauna, the big game of the African continent which normally harbor the trypanosomes without suffering from the disease. The *Glossina* carries infection to domestic animals and to man (if the particular trypanosome present can live in the human body). Serious epidemics among human beings have occurred, as in the great epidemic in the Lake Victoria region half a century ago. The devastating influence of trypanosome infection on cattle and pigs and hence on the general economic status of the population is also, however, a vital practical problem. "Vast areas of Africa are empty except for the tsetse fly and wild animals, which supply the insect with food. There is evidence that in many parts of Africa the fly is spreading, thus squeezing man into smaller and smaller areas, with consequent food shortage and soil erosion."

The importance of this problem caused the calling of an international congress on trypanosomiasis at Lagos during the war. At a conference held in French Equatorial Africa in February, 1948, an International Scientific Committee for trypanosomiasis was created which held its first formal meeting in London in February of the present year.

Practical methods of combating trypanosomiasis have been developed along two major lines of attack, directed, respectively, against the tsetse fly and against the trypanosome itself.

The insect vectors breed in areas covered with shading bush or thicket. Clearing the bush has been effective in *Glossina* control in certain areas, but on a wholesale scale would be impracticable over thousands of square miles. After the bush is cleared the ground must be occupied and cultivated quickly and continuously since scrub and trees in Africa reoccupy temporarily cleared territory with alarming speed. The destruction of the wild game, which is the primary reservoir of infection, has been successful in certain areas of Southern Rhodesia; but again, is impracticable in a vast continent. Finally, the use of insecticides, such as DDT and gammexane, applied by smoke bombs or by apparatus attached to the exhaust of an airplane has given promising results in an experimental area of South Africa. The same principle is now being extensively applied in certain parts of East Africa.

A second line of approach involves the control of the trypanosome by the use of specific drugs which destroy the parasite in the human or animal body. In treatment of cattle a wide variety of substances have been used for this purpose such as antimony compounds, quinolin compounds and phenanthridinium compounds. The last named (dimidium bromide) has been used with effectiveness in Zululand and the Southern Sudan. Antricyde is the most recent addition in this field. For the human being, new drugs are available (antrypol and tryparsamide, and—more recently—pentamidine) which have great promise. Pentamidine, as claimed by workers in the Belgian Congo, will protect man from sleeping sickness for eight or nine months after a single injection; and Antricyde is said to protect cattle against infection for four to six months.

If these claims should prove justified, the status of both men and domestic animals in Africa may be vastly improved. The *British Medical Journal*[1] has, however, pointed out the danger of premature optimism. Its editor points out that there are many variables involved in different areas which "include the species and strains of trypanosome, the species of tsetse common in the area, the presence of big game, the prevalence of other epidemic diseases, the psychological make up of the African." He says, in connection with the last point: "How closely trypanosomiasis is bound up with the culture patterns of each tribe is shown by a consideration of the village pond, anathema to the sanitarian because it provides all-the-year breeding conditions for mosquitoes and tsetse flies. For the villager, however, the pond provides green plants, which, when reduced to ash, are essential as a source of salt. In some areas the ponds contain fish; these are sacred, for either the lives of particular fish may be connected with the lives of particular villagers, or the fish may house the souls of the ancestors. In other areas the banks of the pond form the local latrine, and the fish eat up the fecal matter. Any interference with the village pond may thus have serious repercussions."

In spite of all difficulties it will be surprising if the new methods of attacking tsetse flies and trypanosomes now available do not bring substantial results. Whether—and how soon—the results of rescuing the people and the domestic animals of Africa from trypanosomiasis will increase the food available for other continents, is a more problematical question. The days of imperial exploitation of backward peoples are past. The *British Medical Journal* expresses the sense of grave responsibility which inspires present-day British policy toward its de-

pendencies in closing with the query, "How far are Western European nations, comparatively well fed by African standards, justified in removing from Africa first-class proteins in the shape of meat and eggs when African populations are still living on diets that are grossly deficient in proteins?"

REFERENCE
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HOSPITAL DELIVERY AND INFANT MORTALITY

THE statistical relationship between infant mortality rates in 973 cities of the United States and certain socio-economic indices for those cities is the subject of a brief but highly suggestive study by Altenderfer and Crowther.[1] The four factors analyzed were the median size of the city, its per capita income, the percentage of white persons in its population, and the percentage of births taking place in hospitals. Zero order correlations were negative and considerable, in all but the first of these indices. When the factor of hospitalization was held constant, the first order correlation with race and income fell to a level which was without statistical significance. When—on the other hand—either the race factor or the income factor was held constant, the first-order correlation with hospitalization remained between .47 and .49. When both the factors mentioned were held constant, hospitalization still maintained a significant second-order correlation of .41. The authors conclude that, in the areas studied, "the association of low infant mortality with high per capita income and with high percentage white is a consequence of the association of high values of these factors with high percentages of births hospitalized. The high correlation between infant mortality and percentage of births hospitalized does not necessarily indicate a causal relationship. It is not hospitalization in the narrow sense of the word but the concomitant circumstances—such as an aseptic environment, the availability of skilled care and of facilities for dealing with emergencies, and the better prenatal care usually associated with hospitalization—that save many infant lives. The components of maternity care are difficult to evaluate individually but hospitalization at delivery is an index of the utilization of the best available care."

This study is sufficiently important to warrant careful evaluation and repetition with other data which may be available. On the face of it, the investigation suggests that our general policy of fostering the practice of hospital delivery is a sound one; and that the skepticism on this point which is occasionally expressed is not justified.

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Clearing House on Public Health Salary Information and Personnel Needs

SECOND ANNUAL STUDY OF LOCAL HEALTH DEPARTMENT SALARIES

A body of data about public health salaries is being rapidly built up. The second report on "Salaries of Local Public Health Workers" made by the U. S. Public Health Service in coöperation with the American Public Health Association and the Association of State and Territorial Health Officers, has just been released with an April date line. The previous one was published in May, 1948, and discussed in the October clearing house (*A.J.P.H.* 38, 10:1452 (Oct.), 1948). The first report was based upon 236 local health departments serving populations of from 50,000 to 250,000 in 38 states; the current one on 253 similar departments in 37 states. Two studies of state health department salaries have also been published and discussed in the clearing house (*A.J.P.H.* 38, 5:576 (May), 1948; and 39. 1:79 (Jan.), 1949).

Perhaps the most significant single fact in the latest study of local salaries is that, on the basis of the lower limits of the median salary ranges, there has been an average increase in salaries of 10 per cent during the last year.

Below are shown the number of workers in seven categories reported in the two studies, together with the number of states and number of health departments represented in each category.

At the time of the earlier study 6 health officers were reported receiving $9,600 or more annually; in the current study the number was 17. In the earlier study 7 were reported receiving less than $4,800; currently that number has dropped to 5. Eight sanitary engineers are reported in the current study to be receiving $6,000 or more annually as against none in the earlier report. However, 18 were receiving less than $3,000 as against 15 in the earlier study when a slightly larger total number of sanitary engineers was reported. The number of sanitarians receiving $4,800 or more increased from 3 to 6 during the year, and those receiving less than $2,400 dropped from more than one-fourth to less than one-sixth of the total.

The number of supervising nurses receiving $4,200 or more increased from 10 to 23 and only one received less than $2,400, although in the earlier year there had been 10. The number of staff nurses receiving $3,600 or more increased from 17 to 54 and those receiving less than $2,400 decreased from one-third to one-fourth of the total. Three professional laboratory workers were reported receiving $6,000 or more annually in the current study and the number of those receiving less than $2,400 decreased from 27 to 12 per cent of the total during the year.

In studying this brief summary or the

	Number Reporting					
	States		Health Departments		Number of Workers	
	1948	1949	1948	1949	1948	1949
Health officer	34	37	191	223	191	223
Sanitary engineer	25	23	92	71	114	105
Sanitarian	38	37	212	244	956	1,219
Professional laboratory worker	23	34	84	110	179	193
Supervising public health nurse	36	35	159	165	239	232
Staff public health nurse	37	37	224	250	1,648	1,963
Public health educator	16	19	36	56	39	63

more detailed report, it must be remembered that these are local health departments serving populations of from 50,000 to 250,000. Therefore it is hardly to be expected that the medians or ranges of salaries will apply to such metropolitan areas as New York City with its five counties, Philadelphia City and County, Los Angeles, San Francisco City and County, Detroit, and others.

The detailed report has already been distributed to all state and local health officers. Copies for further limited distribution are available from the Committee on Professional Education, American Public Health Association, 1790 Broadway, New York 19.

N.O.P.H.N. RECOMMENDED SALARIES FOR PUBLIC HEALTH NURSES

The Board of Directors of the National Organization for Public Health Nursing has endorsed recommended beginning salaries for 7 grades of typical public health nursing positions. These recommendations were prepared by a subcommittee on salaries of the organization's Committee on Nursing Administration and were published in the agency's magazine, *Public Health Nursing*, April, 1949. The recommendations point out that positions may vary in different agencies and that there may be variation from the recommended minimums in relation to cost of living, experience, and qualifications, etc.

The table shown gives the recommended minimum beginning annual salaries for the seven positions. Included in the recommendations but not reproduced here are two other items, namely, the qualifications for each grade of position and a job description.

Reprints of the article giving the detailed recommendations are available from the National Organization for Public Health Nursing, 1790 Broadway, New York 19.

THE SALEM EXPERIMENT

It is Salem, Mass., though there is an apocryphal tale that Salem, Ore., once brashly asked its much older namesake to change its name to avoid mail mixups. At any rate, the New England Salem is the guinea pig in an experiment in developing public opinion for a long-range attack on the problem of informing citizens about public health.

Position	*Recommended Minimum Beginning Annual Salaries*
Registered Nurse	$2,700
Public Health Nurse, Grade I	3,000
Public Health Nurse, Grade II	3,600
Public Health Nurse Supervisor or Public Health Nursing Director in agency with fewer than 10 nurses	4,200
Public Health Nurse Consultant, not fully qualified	4,500
Public Health Nurse Consultant, fully qualified	5,500
Public Health Nursing Assistant Director or Public Health Nursing Director in agency with from 10 to 50 nurses	6,000
Public Health Nursing Director in agency with 50 or more nurses or State Director of Public Health Nursing	7,500

Based on the fact that today's students are tomorrow's voters and legislators—and workers—the Salem project is an experiment in training high school students in the elementary concepts of community health. In a "Suggested Guide to Health Teaching in the Senior High School" being prepared, a unit entitled "Health Professions and Agencies at Work" was included. Since much of the material in it was untried as teaching material, the unit was taught to a group of seniors in the Salem High School as a part of the course in "Problems of Democracy." The first lesson made use of two current articles, "The Shame of Our Local Health Departments," from *Collier's Magazine*, which is a broad national look at the local health picture, and a *Boston Herald* article, "Nashoba Unit Pioneering Way to Good Health at 40 cents a Person," which is a story of the way one Massachusetts community is providing local health services.

This whole pilot experiment is written up in the April, 1949, *Health News* of the Massachusetts Department of Public Health, by a state district health educator and a director of social studies in the high school. It is pregnant with suggestions for recruitment as well. As high school youngsters know more about public health services and their importance, they will also tend to join the ranks of its workers. The summary of the pilot experiment says "When the teacher helps his students to discover, define, and explore their own needs and those of their community, high school boys and girls will enter into this experience with spontaneity, interest, and energy to produce understanding and lasting interest in this relatively new area of public health."

AN EXAMPLE OF CITIZEN INTEREST

If there is a profession in which there is a more critical shortage of personnel than public health, it is the teaching profession. And already, for several years, the National Education Association, the professional organization, and many other agencies have been pounding away at the low salaries and untoward personnel practices that have been steadily depriving the profession of some of its best practitioners.

Now a National Citizens' Commission for the Public Schools has been formed, under the chairmanship of Ray E. Larsen, who is President of Time, Inc., and of the United Hospital Fund of New York.

The commission has received initial financial support from the Carnegie Corporation and the General Education Board. The present membership is 28, later to be increased to 60. These 28 represent newspapers, magazines, business firms, labor, farm organizations, public relations as well as educational organizations.

A full-time educational consultant will be employed, assisted by an advisory board of educators. It will act as a clearing house of information on public school problems for local groups. The commission's program calls for citations of groups of laymen who have made exceptional progress in improving their local public schools, and outstanding achievements of good public schools may later be chosen for public citation.

Who will organize a National Citizens' Commission for the Public Health Departments?

THE OREGON ALARM RINGS

The President of the Oregon State Board of Health, Dr. Charles E. Hunt, by way of a letter to the Ways and Means Subcommittee of the Oregon Legislature, has called for action to avert a serious breakdown of public health control because of the Board's inability to recruit and retain personnel at the low salaries authorized by the state. Said Dr. Hunt, "The Board is not only unable to pay salaries com-

parable to those paid in private enterprise and in our neighboring states of Washington and California, but it actually cannot compete with counties of our own state in recruiting specialized personnel." There are five key vacancies in the State Health Department, one of almost five years' standing.

Take a Test

The Merit System Service booth at the American Public Health Association annual meeting in Boston attracted considerable attention with its "TAKE A TEST" exhibit. This consisted of six short sample tests, designed to illustrate the type of service being offered by the Merit System Service and to show how public health information, experience, and judgment can be measured by objective examinations.

The exhibit was repeated at the Western Branch meeting of the American Public Health Association in Los Angeles, Calif., May 30 to June 1.

The results for the Boston meeting are available in an attractively bound report which contains copies of the six sample tests, an answer key, an analysis of the scores of the persons tested, and an analysis of the items themselves. The latter illustrates the method which is used to evaluate the effectiveness of individual questions. The report may be obtained by writing to the Merit System Service, American Public Health Association, 1790 Broadway, New York 19, N. Y. $1.00.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Cooperation for Rural Health—*By Helen L. Johnston. Washington, D. C.: U. S. Dept. of Agriculture, Farm Credit Administration (Miscellaneous Report 123)*, September, 1948. 55 pages. Processed.

This is a booklet on group prepayment plans for medical care addressed primarily to farm people. It is illustrative of a significant body of literature coming from agricultural agencies in response to the demands of rural leaders.

The federal Farm Credit Administration is concerned, among other things, with assisting farmers' marketing and purchasing coöperative associations. For some years these associations have applied coöperative principles to the purchase of medical and related services, and Miss Johnston has made on-the-spot studies of numerous such programs. Her booklet describes the structure and function of these programs under a pragmatic (rather than logical) classification: hospital service plans, insurance company plans, and coöperative health associations. Sufficient detail on the operation of different plans is given to implement a brief section on Suggestions for Rural Health Improvement Programs.

The booklet closes with an appendix on specific steps to be taken in studying the needs and resources of a rural community to provide the basis for organizing programs to improve medical services. In the effort to achieve simplicity, there is some rushing into problems where angels fear to tread, especially in the discussion of health service planning beyond the sphere of prepayment programs. As an easy-to-read manual on group medical care insurance plans, however, the booklet should be useful to rural leaders and possibly to public health workers from whom farm organizations seek advice.

MILTON I. ROEMER

Nursing of the Sick—1893—*By Isabel Hampton and others. Published under the sponsorship of the National League of Nursing Education. New York: McGraw-Hill,* 1949. 218 pp. Price, $3.50.

Whether you like history or not, the reader will not be able to browse through this collection of papers and discussions of nursing from the International Congress of Charities, Correction and Philanthropy (Chicago, 1893) without smiles of amusement, moments of pride. and a deeply moving sense of the progress of nursing over the last half century. Here are not only famous names, but penetrating observations and keen understanding of the needs of patients, the goals of nursing and the responsibilities of administrators which change little over the years. A study of these earlier opinions and experiences puts our current problems in a clearer light, and frequently an amazingly modern-sounding phrase leaps from a page, as—Miss Wald: "Why should a training school or hospital have the right of deciding what a nurse shall charge? [For her services to private patients.] She should have the privilege of setting her own price. It is as much professional work as that of the physician." (Page 104.)

The description of nursing techniques, positively victorian in atmosphere, is rewarding in an occasional practical and still timely suggestions, while the procedures routinely carried out in ob-

stetric care will cause shudders of dismay in the light of our present practice.

Nurses who are interested in psychiatric nursing will enjoy Miss May's report (page 176). Mrs. Kinney's address on the training of attendants (the last in the book) is enlightening, and public health nurses will not want to miss the six or seven papers dealing with district nursing. Here, too, comparisons are inevitable as we read of experienced visiting nurses paid $50 a month and special nurses supplied for "contagious cases."

The League and McGraw-Hill are to be congratulated for reopening this rich mine of nursing history.

DOROTHY DEMING

Modern Trends in Public Health —*Edited by Arthur Massey. New York: Hoeber,* 1949. 549 pp. Price, $12.50.

The student of "social medicine" in Great Britain today should find a store of his country's distinguished history, leadership, and accomplishment in the packed pages of this contemporary summary by well qualified authors. The undergraduate student of medicine in England could do no better than rely upon the 73 chapters as basic for his course in preventive medicine and public health.

The topics are well chosen, though not intended to be inclusive or presented with the detail and technology required by the graduate specialist in administrative posts.

Of these chapters a half dozen deal with various of the more recent trends in thought and social experience for health: The Idea of a Family Health Club; Social Medicine as Academic Discipline; General Practice and its contribution to Preventive Medicine; Combat with Atmospheric Pollution; Chronic Rheumatism as a Public Health Problem; Housing and the Home, the New Outlook.

If one were to select chapters for special praise in the matter of content, form, and spirit, those by Parry of Bristol on Health Centers; by Stocks on Vital Statistics; by Stewart on Occupational Health; by Sutherland on Health Education; by Tattersall on Tuberculosis; and by Williams of Southhampton on Health Control at the Ports are particularly satisfying.

The book will serve a good purpose for the many who take a cultural rather than technical or professional interest in the application of the sciences of preventive medicine for social ends.

A number of social movements of concern to American readers are not dealt with, but most of the indispensables of public health service and participating medical practitioners are treated systematically and in suitable detail within the limits of the 549 large and well printed pages. An index is clear and convenient. This monograph has the blessing of Sir Wilson Jameson. The editor, Dr. Massey, has put public health readers in his debt.

HAVEN EMERSON

Recent Advances in Respiratory Tuberculosis—*By Frederick Heaf and N. Lloyd Rusby (4th ed.). Philadelphia: Blakiston,* 1948. 290 pp. Price, $5.50.

In the first three editions of this book, the original author, Dr. L. S. T. Burrell, presented a predominantly clinical review of the subject for general practitioners and medical students. The authors of this fourth edition have followed the same pattern because they "have felt that the subject Respiratory Tuberculosis could best be presented as a consecutive narrative with the new developments engrafted upon a background of the ideas and conceptions previously held."

The book is thus largely a manual or synopsis of the general principles of the pathogenesis, diagnosis, treatment, and prevention of tuberculosis, rather than being primarily an account of "recent

advances." Within this scope, the presentation on the whole is adequate. Because it *is* predominantly clinical in character, it might be useful chiefly as a reference on this aspect of tuberculosis.

Epidemiological data and the principles of the modern tuberculosis control program are presented almost entirely with reference to conditions in Great Britain. EDWARD X. MIKOL

Social Work Year Book, 1949 *(10th ed.)—By the Russell Sage Foundation. New York: Russell Sage,* 1949. 714 pp. Price, $4.50.

It would be helpful if more public health workers became thoroughly familiar with this book which is published biennially as a concise encyclopedia descriptive of organized activities in social work and related fields. The present edition, the tenth in the series, like its predecessors, contains two main divisions, the first consisting of 79 signed articles written by authorities on a variety of topics, and the second consisting of four directories of agencies whose programs are integral with or related to the subject matter of Part I.

Topical articles on subjects of special interest in public health include that on medical care by Dean A. Clark and Katharine G. Clark; on social hygiene by Walter Clarke, M.D.; on public health nursing by Anna Fillmore, R.N.; on sight conservation by Winifred Hathaway; on the crippled by Lawrence J. Link; on mental hygiene by Thomas A. C. Rennie, M.D.; on public relations by Mary Swain Routzahn; on public health by Leonard A. Scheele, M.D.; on medical social work by Theodate H. Soule; on chronic illness by Milton Terris, M.D.; on maternal and child health by A. L. Van Horn, M.D.; and on school health services by Charles C. Wilson, M.D.

The book is particularly well suited for those seeking a broad view of current affairs in this field, for example, such as students and overseas visitors in the United States. It is a volume for daily reference on the desk of the administrator.

REGINALD M. ATWATER

Health Teaching in Schools— *By Ruth E. Grout. Philadelphia: Saunders,* 1948. 320 pp. Price, $4.00.

This time the saying, "you can't judge a book by its cover," is incorrect. The cover is but a foretaste of the excellence of the product within. In fact the cover is so compelling that one must pick up the book for a closer inspection when it is first seen.

Health Teaching in Schools enables the prospective teacher or the teacher in service to gain an understanding of the health needs of children, and how these needs may be used as a basis for the health education program.

Emphasis throughout is on the application of sound educational philosophy and method in the development of the health education program. The relationship between school and community is stressed. Particular attention is given to the role of community resources which can contribute to the school health program.

The practical aspects of health teaching in the classroom are discussed in two chapters, Guides to Health Teaching in Elementary Schools, and Guides to Health Teaching in Secondary Schools. The text contains abundant examples from all parts of the country to illustrate the application of accepted educational methods.

Chapter VIII on audiovisual materials in health education not only discusses their place and use in the school health program, but also where these materials may be obtained.

Under the title Co-Workers in Health Education is presented a summary of all the persons, organizations and agencies, official and voluntary, local, state

and national, that have any relation to the school health program. The point of view expressed in this chapter can best be presented in the words of the author: "Health education is a function of many individuals and groups within the school and community aside from the teachers themselves. . . . Only as each citizen participates actively in personal and community health betterment and only as groups learn to pool their resources through unified efforts, will the community's most urgent health problems be met. No one individual or agency alone can accomplish these ends. All must be co-workers on a united front."

Format, paper, and printing are good.

This book is a valuable addition to health education. It should find many uses in the expanded teacher education program in health education.

S. S. LIFSON

The Quest for Pure Water—*By M. N. Baker. New York: American Water Works Assn.,* 1948. 527 pp. Price, $5.00.

Do you know that records almost 4,000 years old recognize the efficacy of boiling water to make it safe to drink? What did the biblical Mosaic laws have to say about water purification? Who were the pioneers in water purification in the United States? When was water softening first undertaken on a full municipal level in the United States?

This volume by Mr. Baker will answer many more questions than those asked above. It is the history of water purification as compiled by him during many years as Associate Editor of *Engineering News Record,* as he found it in engineering history from many parts of the world, and as related to him by individuals from firsthand experiences and records.

It is not a textbook of water treatment. Rather, starting with records that go back to early Sanskrit, it carries the story of water purification through Europe and the United States, from slow sand filtration to rapid filtration, from softening to the elimination of tastes and odors. It will save hours of research time for those who are looking for background material, and prove fascinating reading to anyone interested in safe water supplies. It is generously illustrated and thoroughly documented.

FRANCIS B. ELDER

The Commonsense Psychiatry of Dr. Adolph Meyer—*Edited by Alfred Lief. New York: McGraw-Hill,* 1948. 677 pp. Price, $6.50.

This book is much more than an edited compilation of the writings of Dr. Adolph Meyer. While it brings together 52 selected papers by Meyer and creates a source book where the student may for the first time find the basic writings of Meyer, it is also the biography of a great man.

Through skillful organization of his material the author presents the development of Adolph Meyer through his experiences, his action, and his thinking. The volume is divided into sections dealing with successive phases of Dr. Meyer's career, his early life in Switzerland, his education and training in Europe, the various positions he held in Illinois, Massachusetts, New York, and, finally, at Johns Hopkins in Baltimore. In each of these there is a preliminary account of the circumstances of his work, the things he accomplished and something of his associates. Following are selections of the articles written by Meyer in their particular period. It is fascinating to watch the growth in thinking of a man as portrayed in his own writings, organized, however, by an able biographer in such a way as to be correlated with the time and place and events of the subject's life.

The volume is, however, more than a biography, more than a collection of papers. It is a history of the develop-

ment of psychiatry and mental hygiene in this country. It is not strange that this should be so, for in one way or another, Meyer was connected with every major development in these fields during his lifetime.

While the book will have great interest for professional people working in the field of psychiatry, it should appeal also to all those who enjoy well written biography. Alfred Lief in this biography of a distinguished psychiatrist has added another to his list of similar achievements.

JAMES M. CUNNINGHAM

Your Teeth: How to Save Them —*By Herbert Yahraes. New York: Public Affairs Committee,* 1949. 30 pp. Price, 20¢.

This is a very up-to-date booklet giving the latest information on dental health. Its chapter make-up is good and each one is complete in the information it offers.

It is too long for the average parent to read and should not be distributed through this channel. Its language in many instances is also a bit too technical and would discourage the average parent from reading; however, there is always a special need for material of this kind in certain parent groups where the educational level is particularly high and the trend is toward study group programs.

Technical material of this type organized as a complete unit in a pamphlet of this kind has many suggested uses in the field of dental health education. Public health nurses can assimilate much added information for use in their work. Teacher training institutions, college health courses, and nurse's undergraduate and postgraduate training schools could make excellent use of this pamphlet in their curriculum planning.

Never to be neglected is the excellent possibility this booklet offers teachers as a reference source in classroom study where units of dental health may be formulated or assigned. These outlets for use of this material make it an excellent adjunct in the field of dental health education and it serves a definite need. L. A. GERLACH

Safer Ways in Nursing to Protect against Tuberculosis — *Prepared by the Joint Tuberculosis Advisory Service of the National League of Nursing Education, National Organization for Public Health Nursing, and the National Tuberculosis Association, New York.* 1948. 108 pp.

This satisfying complete, practical, and accurate handbook is an outstanding example of what happens when national organizations pool their knowledge and write for the nurse in the field —wherever she may be—home, hospital, or clinic. The fundamental principles are discussed, defined, applied, adapted. Every nurse—and this is for once an all inclusive statement—should read and use the directions in this handbook and then keep them on hand for ready reference. An attendant who follows these suggestions conscientiously may be assured that he or she is carrying out every known precaution to prevent the infection of himself or others. The handbook is well documented for those who wish to check the facts or read further in a subject, and it contains concrete lists of equipment, formulas, and sources for purchase of materials. Altogether a masterly, universally needed contribution to safer nursing ways.

DOROTHY DEMING

Your Baby—*By Gladys Denny Shultz and Lee Forrest Hill. Garden City, N. Y.: Doubleday.* 1948. 278 pp. Price, $3.50.

Shultz and Hill have restored to the infant and preschool child the male parent. He gives the first bath to the new-born. There are jobs for him dur-

ing breast feeding on the self-demand schedule. He plans the daily work schedule with the mother. He is needed to arrange living quarters and play areas.

This book correlates child development with psychological implications. Fluctuations in appetite are connected with rate of growth. Peculiarities of food likes and dislikes of preschoolers are clarified. Repeated respiratory infections are explained as a means of increasing immunity.

The presentation on habit training may be confusing. The daily schedule includes toileting at the age of 7 months, although it is stated that sphincter control develops at 24 months of age and that self-training is preferred. The effect on posture of the recommended stomach sleeping and confinement to play pens is debatable at present. Although "rooming-in" is advocated for the future, we should like to have had natural childbirth mentioned also.

This book is beautifully illustrated and has space for the record of one child. Its emphasis on paternal participation in child care is to be commended. HARRIET E. NORTHRUP

Measurements of the Public Health—*By F. A. E. Crew. Edinburgh, Scotland: Oliver and Boyd,* 1948. 237 pp. Price, 18s.

This book presents interesting vital statistics of the population of Scotland, together with their interpretation by the author. It contains a wide variety of charts, graphs, and tables in its eight chapters. The rates and ratios are grouped by chapter to cover population, birth and fertility rates, illegitimacy, multiple births, sex-ratio, marriage, biology of death, and stillbirth, infant mortality and maternal mortality.

The rates and ratios given are indeed good standards by which the health status of a given area can be measured. The interesting and valuable knowledge gained from age-specific deaths of tuberculosis, for example, is well known. The author, therefore, by careful analyses of such data has rendered a worthwhile service to those in Scotland who have responsibilities in public health administration, or "Social Medicine" as it is designated by the author.

Students of the measurements of public health would be interested in the *Evaluation Schedule* of the American Public Health Association and the current research on its validity as another instrument for measuring an area's health status and accomplishments. The *Evaluation Schedule* which is now in its 29th year as a measuring device selects much different criteria. The *Evaluation Schedule* is believed by the reviewer to be a more rounded instrument in that it includes an evaluation of such criteria as immunization levels, the status of basic environmental sanitation and the like, and to some extent, of public health practice.

ROBERT E. ROTHERMEL

Experimental Immunochemistry—*By Elvin A. Kabat and Manfred M. Mayer. Springfield, Ill.: Thomas,* 1948. 551 pp. Price, $8.75.

This book brings together, for the first time methods which have been useful in providing quantitative results in the field of immunology. The subject of experimental immunochemistry is presented in 4 parts. In Part I are discussed clearly and concisely the definitions and methods of immunology: precipitin reaction, agglutination, complement, complement-fixation, anaphylaxis, and the characterization of antibodies. Part II describes uses and applications of quantitative immunochemical methods to many problems. Part III is devoted to a compilation, with descriptions, of methods of characterizing substances in which an immunologist may become interested. Included are 11 sec-

tions on procedures for determination of various chemical groupings, 7 sections on methods of studying the physical properties of substances, as well as sections covering other procedures ordinarily carried out by the immunochemist. Some methods are given in a sketchy manner, but all are well documented with references to the original articles. Part IV deals with preparations of individual proteins, polysaccharides and related substances whose immunological behavior has been studied. Finally an appendix is included which gives details regarding minor points of technique.

The book is well written and contains an abundance of tables and figures which are taken from reference articles and show data obtained by the experimental method under consideration. While it does not cover the theoretical aspects of immunology, the book does provide a stimulating array of methods for the study and use of antigens and antibodies by the chemist as well as the bacteriologist and immunologist.

GEORGE A. HOTTLE

District Nursing. *A handbook for district nurses and for all concerned in the administration of a district nursing service—By Eleanor Jeanette Merry and Iris Dundas Irven. Baltimore: Williams and Wilkins,* 1948. 266 pp. Price, $4.00.

This little handbook, designed primarily for public health nurses in Great Britain, is of deep interest to public health workers on this side of the Atlantic where conditions are so different. The book provides an overall picture of public health nursing procedures, and includes chapters on public health administration, public health legislation, and social insurance. The authors are brief and concise, and have outlined their material clearly. To the general reader, they may seem somewhat didactic, and, in a few instances, accuracy has been sacrificed to brevity. The chapter on Family Health Teaching contains many helpful ideas for the public health nurse in the home and in the clinic. The discussion on midwifery and maternity is also extremely helpful.

The book is well illustrated with photographs selected to show public health nurses at their work and to supplement the discussions. There are also some excellent sketches showing the necessary equipment in the home for such procedures as administration of insulin or for a surgical dressing. Copies of various record forms and printed instructions are included, and will prove interesting to the reader.

The authors are well equipped, both by preparation and experience to prepare such a handbook, and throughout their work there is a note of kindly understanding and appreciation for what the public health nurse is trying to do in her work with the families assigned to her care. KATHLEEN M. LEAHY

Symposium on Medicolegal Problems. *Under the Co-Sponsorship of the Institute of Medicine of Chicago, the Chicago Bar Association, and the Chicago Medical Society—Edited by Samuel A. Levinson. Series Two. Philadelphia: Lippincott,* 1949. 276 pp. Price, $5.00.

This is the second of the able and interesting reports of the joint meetings of physicians and attorneys in Chicago. The first, concerned with medical witnesses, artificial insemination, pathology, sterility operations, trauma, and cancer, and scientific tests as evidence, was reviewed in the June, 1948, issue of this *Journal.* The current series is somewhat broader and more thorough than the first. It begins with a most comprehensive and rather technical discussion by W. M. Krogman, Ph.D., of the human skeleton in legal medicine, with legal comments by A. R. Peterson, Esq. For those interested in deter-

mining with reasonable accuracy the age, sex, race, and height of a deceased human body from a few available bones or fragments of bones, invaluable assistance will be found in this section, which is said to be the first integrated presentation of this material.

Other subjects include psychiatry and the civil law, the medical aspects of which are capably presented by F. J. Gerty, M.D., and the legal by Judge H. M. Fisher; psychiatry and the criminal law, discussed from the medical viewpoint by P. L. Schroeder, M.D., and from the legal by W. F. Crowley, first assistant State's attorney; federal control of drugs and cosmetics, by Morris Fishbein, M.D., and A. M. Loverud, Esq., principal attorney, Food and Drug Division, Federal Security Agency; and radiation hazards and health protection in radioactive research, including the atom bomb and its products, by A. M. Brues, M.D., who was associated with the Manhattan District, and A. J. Bowe, Esq. It is interesting and distinctly startling to note that the radioactive effects of just one of the bombs used at Bikini is equivalent to that of several thousand tons of radium, whereas the average radiologist has carefully locked up in his safe in a platinum or lead container not more than 25 to 50 milligrams of radium, or perhaps one one-thousandth of an ounce.

Each of the sets of papers is followed by a question and answer period, and Dr. Levinson contributes a summary of the facts presented in this well printed book. It should be of great interest and value to all who are concerned with these timely problems.

JAMES A. TOBEY

Perspective in Medicine. *Six Lectures to the Laity on Frontiers of Medical Research. The March of Medicine, 1948. New York: Columbia University Press,* 1949. 163 pp. Price, $2.50.

This volume represents the 13th annual series of the Laity Lectures of the New York Academy of Medicine presented during the year 1947–1948. Six lectures fit well under the topic "Perspectives in Medicine" as follows: The Atom in Civil Life by Lewis L. Strauss of the U. S. Atomic Energy Commission; Food and Civilization by Sir Raphael Cilento, M.D., Director of the Social Division of the United Nations; On Being Old Too Young by Edward J. Stieglitz, M.D., of the Suburban Hospital, Washington, D. C.; Perspectives in Cancer Research by Cornelius P. Rhoads, M.D., Director of the Memorial Hospital, New York; Psychiatry for Everyday Needs by William C. Menninger, M.D., of Topeka, Kans., and The Inter-Relation of Pure and Applied Science in the Field of Medicine by James B. Conant, Ph.D., President of Harvard University.

On the whole, these lectures represent a very good adjustment of the story in these technical fields to the vocabulary of the intelligent reader. The Academy is to be congratulated on this edition of the series.

REGINALD M. ATWATER

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN FOUNDATIONS AND THEIR FIELDS VI. Edited by Wilmer Shields Rich and Neva R. Deardorff. New York: Raymond Rich Associates, 1948. 265 pp. Price, $6.00.

AMERICAN YEAR BOOK 1948. Edited by William M. Schuyler. New York: Thomas Nelson, 1949. 814 pp. Price, $15.00.

A BABY IS BORN. Milton I. Levine and Jean H. Seligmann. New York: Simon & Schuster, 1949. 54 pp. Price, $1.50.

CLASSIFIED BIBLIOGRAPHY ON GERIATRICS AND THE CARE OF THE AGED. John J. Griffin. Somerville, Mass.: Bureau of Old Age Assistance, 1948. 80 pp. Price, $2.10 postpaid, $1.85 prepaid.

CONFERENCE ON METABOLIC ASPECTS OF CONVALESCENCE. Transactions of the 17th Meeting March 29–30, 1948. New York: Josiah Macy Jr. Foundation. 246 pp. Price, $4.00. Transactions of the 16th Meeting, October 27–28, 1947. 108 pp. Price, $3.00.

COMMON SENSE ABOUT FUND RAISING. Robert Keith Leavitt. New York: American Book, 1949. 76 pp. Price, $2.00.

DIAGNOSTIC TESTS FOR INFANTS AND CHILDREN. H. Behrendt. New York: Interscience, 1949. 491 pp. Price, $7.50.

DISCIPLINE. James L. Hymes, Jr. New York: Teachers College, Columbia University, 1949. Price, $.60.

ENCYCLOPEDIA OF CRIMINOLOGY. Edited by Vernon C. Branham and Samuel B. Kutash. New York: Philosophical Library, 1949. 527 pp. Price, $12.00.

FACTS ABOUT THE CHANGE OF LIFE. E. C. Hamblen. Springfield, Ill.: Thomas, 1949. 86 pp. Price, $2.50.

FIRST AID TEXTBOOK FOR JUNIORS—AMERICAN RED CROSS. Philadelphia: Blakiston, 1949. 127 pp. Price, $1.00.

FOOD AND FACTS FOR THE DIABETIC. Joseph H. Barach. New York: Oxford University Press, 1949. 113 pp. Price, $4.00.

HAVING YOUR BABY. Leonard H. Biskind. Portland, Ore.: Western Journal of Surgery Publishing Co., 1949. 91 pp. Price, $2.50.

HEALTH EDUCATION IN SCHOOLS. Jesse Feiring Williams and Ruth Abernathy. New York: Ronald Press, 1949. 307 pp. Price, $3.50.

HEATING VENTILATING AIR CONDITIONING GUIDE 1949. Vol. 27. New York: American Society of Heating and Ventilating Engineers, 1949. 1384 pp. Price, $7.50.

HELP YOURSELF TO BETTER SIGHT. Margaret Darst Corbett. New York: Prentice-Hall, 1949. 218 pp. Price, $2.50.

THE HOUSE IN WHICH YOU LIVE. Ange Belle Chandler Riley. Los Angeles: Research Publishing Co., 1949. 199 pp. Price, $3.00.

HOW TO BECOME a DOCTOR. George R. Moon. Philadelphia: Blakiston, 1949. 126 pp. Price, $2.00.

LA ESCUELA Y LA SALUD. J. Saralegui. Montevideo, Uruguay: Imprenta National, 1949. 435 pp.

MIRROR OF YOUR MIND. Lawrence Gould. New York: Frederick Fell, 1949. 190 pp. Price, $1.95.

THE MOST DESIRABLE PERSONAL CHARACTERISTICS. New York: Engineers' Council for Professional Development, 1949. 25 pp. Price, $.25.

THE NATURAL HISTORY OF MOSQUITOES. Marston Bates. New York: Macmillan, 1949. 368 pp. Price, $5.00.

NEW HOPE FOR THE HANDICAPPED. Howard A. Rusk and Eugene J. Taylor. New York: Harper, 1949. 224 pp. Price, $3.00.

OFFICE MANAGEMENT FOR HEALTH WORKERS. Frances King and Louis L. Feldman. New York: Commonwealth Fund, 1949. 158 pp. Price, $2.25.

POLIOMYELITIS. Papers and Discussions Presented at the First International Poliomyelitis Conference. Philadelphia: Lippincott, 1949. 353 pp. Price, $5.00.

PRINTING AND PROMOTION HANDBOOK. Daniel Melcher and Nancy Larrick. New York: McGraw-Hill, 1949. 386 pp. Price, $6.00.

PROBLEMS OF EARLY INFANCY. Transactions of the Second Conference March 1–2, 1948. New York: Josiah Macy, Jr., Foundation. 120 pp. Price, $1.00.

PROFESSIONAL GUIDE FOR JUNIOR ENGINEERS. William E. Wickenden. New York: Engineers' Council for Professional Development. 56 pp. Price, $1.00.

A PSYCHIATRIC APPROACH TO THE TREATMENT OF PROMISCUITY. New York: American Social Hygiene Association, 1949. 81 pp. Price, $.75.

PSYCHOLOGY FOR THE PROFESSION OF NURSING. Jeanne G. Gilbert and Robert D. Weitz. New York: Ronald Press, 1949. 263 pp. Price, $3.00.

PUBLIC HEALTH AND HYGIENE. A Student's Manual. Charles Frederick Bolduan and

Nils William Bolduan. (4th ed.). Philadelphia: Saunders, 1949. 407 pp. Price, $4.25.

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ACTION FOR HEALTH. Second Annual Report 1949. New York: Health Council of Greater New York. 16 pp.

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KANSAS CITY AND WYANDOTTE COUNTY, KANSAS, ANUAL REPORT. 1948. Kansas City: City Department of Health, 1949. 33 pp.

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THEY NEVER SUSPECTED. Factual Report on a Family Nutrition Study. Mansfield, Ohio: Westinghouse Electric Corporation. Home Economics Institute, 1948. 48 pp.

WASHINGTON STATE HOSPITAL STUDY. Seattle, Wash.: State Dept. of Health, 1949. 79 pp.

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A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Guidance and Understanding—This is an exciting era in obstetrics adorned with the new phrases like, "childbirth without fear," "painless childbirth," "natural childbirth," "relaxation exercises," "rooming in," "self-demand feeding," and "early ambulation." So begins a story of a clinic in which a real educational job is done.

BOYLE, F. Public Health Nurse in an Obstetrical Clinic. *Pub. Health Nursing* 41, 5: 253 (May), 1949.

Letter from Great Britain—At the first London County health center, now authorized, medical and dental practitioners, and local health staffs will be housed together for a more effective collaboration between curative and preventive medicine.

BROCKINGHAM, F. The General Practitioner in Great Britain in 1949. *Canad. J. Pub. Health* 40, 4:171 (Apr.), 1949.

Here To Stay: They Say—Canadian children under 16 receive a government allowance of $5 to $8 a month. No strings attached! In the United States this would mean a 3¼ billion appropriation. Are you interested?

CLOSE, K. Dominion Pay for Every Child. *Survey* 85, 5:245 (May), 1949.

Rats and Repairs—Is this something you, too, haven't thought much about? An estimate of the number of rats in a city is clearly necessary for an evaluation of the problem and the effect of repressive measures. That introduction set me off in pursuit of the novel assumption, and I hope it will do the same for you.

DAVIS, D. E., AND FALES, W. T. The Distribution of Rats in Baltimore, Maryland. *Am. J. Hyg.* 49, 3:247 (May), 1949.

Ten Years Later—After a riotous start marred by ugly legal and extra-legal shenanigans, the Group Health Association of Washington has become a respectable, prepaid medical service, its staff accorded hospital privileges, and accepted in medical societies. Incidentally, the scheme is increasingly successful.

ETKIN, S. A Decade's Experience in the Operation of a Group Medical-Care Organization. *New England J. Med.* 240, 18:703 (May 5), 1949.

About Ready Cures for Social Ills—When we speak as professionals about matters beyond our knowledge and training, we weaken our authority to speak and to act in matters within our professional range. This gem is culled from a warning to the dilettante mental hygienists among us plodding health workers—a warning covering a lot of ground, incidentally.

GINSBURG, S. W. Social Science and Social Action: Implications for Mental Hygiene. *Ment. Hyg.* 33, 2:236 (Apr.), 1949.

More Recruits—In this study, every third patient who registered at the prenatal clinic was conditioned for childbirth without anesthetics. Provided the proper services are available the scheme is physically safe and psychologically desirable, conclude the researchers.

GOODRICH, F. W., JR., AND THOMS, H. A Commentary on Natural Childbirth. *Pediatrics* 3, 5:613 (May), 1949.

Not Like Rubella—During the 1947 mass vaccination in New York, 4,172 women received vaccine while in the first trimester of pregnancy. There was no evidence of any deleterious effect upon the developing embryo.

GREENBERG, M., *et al.* The Effect of Smallpox Vaccination During Pregnancy on the Incidence of Congenital Malformations. *Pediatrics* 3, 4:456 (Apr.), 1949.

This I Didn't Read—I imagine this panel discussion on rheumatic fever must be highly useful for all health workers concerned with the care of patients with that disease. Others, more conscientious, will jeopardize their priceless eyesight by wading through 30 solid pages of over-long lines set in 8 point type.

HILL, L. F., *et al.* Rheumatic Fever: Summary of Present Concepts. *Pediatrics* 3, 5: 680 (May), 1949.

Professional Tempus Fugit-s, Too—When there isn't enough to go round, it is doubly important to be sure one child isn't getting more than his share. This time study of a health department showed that school health was eating up most of the nurse's time and that V.D. and infant health were starving.

MALCOLM, J. C., *et al.* Time Analysis of Public Health Nursing Service. *Pub. Health Rep.* 64, 17:523 (Apr.), 1949.

Pediatricians Needed—To summarize a summary, says one of the writers, approaches a *reductio ad absurdum*. Nevertheless, he squeezes a few drops of juice from the already compressed fruits of the now celebrated pediatric survey. It will help you to read this thumbnail reminder of what's wrong with our child health services.

SISSON, W. R., AND HUBBARD, J. P. Child Health Services and Pediatric Education. *Pediatrics* 3, 4:401 (Apr.), 1949.

Cautions Against Caretaking—Here is a little sample, "Officially in Great Britain you are old at sixty if you are a woman. Why, I don't know: but that is a fact—a legal fact. And you are old at sixty-five if you are a man." Don't you think you had better hunt out this paper? There is a lot more in it than just readable writing.

SHELDON, J. H. Old-Age Problems in the Family. *Milbank Mem. Fund Quart.* 27, 2: 119 (Apr.), 1949.

Coördination More Vital Than Centralization—Statistical activities of the 48 state health departments follow 5 basic patterns. (I'd have thought there would be nearer 48 patterns.) Most have no central statistical organization, each division keeping its own records catch-as-catch-can.

SWINNEY, D. D. Current Organizational Patterns of Statistical Activities in State Health Departments. *Pub. Health Rep.* 64, 20:621 (May 20), 1949.

Let the Nurses Do It!—Ways have been worked out to teach nurses, while on the job, to deal with family mental health problems, as part of the daily program of a small health department. This you should know about.

ZIMMERMAN, K. A. The Importance of the Family in the Prevention of Mental Illness. *Milbank Mem. Fund Quart.* 27, 2:133 (Apr.), 1949.

Motion Picture Film Reviews

HOMER N. CALVER, *Film Review Editor*

The Story of Wendy Hill—Diabetes. Color. Sound. 18 min. 16mm. and 35mm. Warner News, Inc., for U. S. Public Health Service and American Diabetes Association. State Health Departments for 16mm.; 35mm. from Chief, Public Health Inquiries Branch, Division of Public Health Methods, U. S. Public Health Service, Washington 25, D. C.

From the medical viewpoint, "The Story of Wendy Hill" presents an accurate story of the discovery of the presence of diabetes mellitus in a young adult and its subsequent care and management. Unfortunately, throughout the first half of the film there is too much background story with too much time being taken to get to the point of the film.

Of course, it is perfectly plausible for diabetes to be discovered upon a routine examination while the patient is in the hospital for some other reason. However, this is certainly not the typical way, and the good doctor's philosophy that being run down by a truck might be considered a good thing is hardly acceptable. It would have been much better to have the patient go through the early symptoms of diabetes, which would lead up to a medical examination with discovery of the disease. The film could then expound upon the virtue of the periodic health examination so that the disease could have been discovered before the symptoms had progressed very far.

The clinical portrayal of the complications of diabetes when left untreated are too sketchy and fail to round out the whole story of the diabetic syndrome.

This film has good educational qualities in that it makes clear that diabetes is a disease to which one can adjust oneself with adequate care. It should be helpful to diabetics in this way, but it has missed a splendid opportunity to emphasize the importance of periodic medical examinations.

It is a very excellent film technically, about the only criticism possible from this angle being that the color is not as brilliant and uniform as we have come to expect in professionally made pictures. This film should be very useful to discussion groups in connection with the proposed educational program of the American Diabetes Association next fall. In such discussions the points of omission can easily be covered.

I. JAY BRIGHTMAN, M.D.
HELEN CROSBY
THOMAS C. STOWELL

Journey into Medicine—Personnel recruitment for public health work. Black and white. Sound. 40 minutes. 16mm. Produced for Department of State. Available for short-term loan from Regional Offices of the U. S. Public Health Service; for purchase from Castle Films, 30 Rockefeller Plaza, New York 20, N. Y. $46.84, less 10% discount to nonprofit organizations.

This documentary film was produced by the U. S. Information Service for showings outside the U.S.A. to give non-Americans an insight into American ways in medicine and public health. It carries a young man through his medical course and his internship in pediatrics, which results in his desire to study public health. There are excellent scenes of good medical teaching against a background of some of America's best teaching institutions (Columbia, Cornell, and Johns Hopkins). The practical side of

the training is organized around an outbreak of diphtheria in Baltimore. The medical and public health content is accurate and well presented. The public service is portrayed in a dignified and attractive manner, and the service motive is well set forth.

The use of this film for recruiting purposes in the United States is limited somewhat by the original objectives of the State Department in its production and distribution.

It would be particularly effective for third and fourth year medical students who are at the period when they are seeking to decide in which field of medicine they can be of maximum service and derive the greatest personal satisfactions.

One wishes that there had been a little less of medical training and a broader treatment of the total activities of the health department.

The type casting is excellently done and some minor roles are played by well known health authorities. Unusually good camera work heightens its intent. Well directed and for its original purpose, well edited. For public health recruitment purposes it would be improved by cutting.

REGINALD M. ATWATER, M.D.
WALTER H. BROWN, M.D.
HOMER N. CALVER

RECENT HEALTH MOTION PICTURE RELEASES

(All 16 mm. sound, black and white, unless otherwise indicated)

IT'S YOUR HEALTH—Dental health education. 18 min.

Southern California State Dental Association, 903 Crenshaw Boulevard, Los Angeles 6, Calif.

EYES THAT HEAR—Deafness. 15 min.

Lexington School for the Deaf, 904 Lexington Ave., New York 21, N. Y.

THIS WAY TO NURSING—Recruitment for nursing education students. 20 min. Also, 35mm.

Emerson Yorke Studio, 35 West 45th St., New York 19, N. Y.

MODERN SURGERY—Resources and techniques of modern hospital—documentation of handling of case in typical family. 18 min.

March of Time Forum Films, 369 Lexington Ave., New York 17, N. Y.

CHARLIE'S MARCH OF TIME—British National Insurance Act. Color. 9 min.

CHILDREN GROWING UP WITH OTHER PEOPLE—Child Relationships at various age levels. 30 min.

CHILDREN LEARNING BY EXPERIENCE — Child training. 40 min.

TOWN RATS—Rat extermination. 16 min.

YOUR VERY GOOD HEALTH — British National Health Service Scheme. Color. 10 min.

British Information Services, 30 Rockefeller Plaza, New York, N. Y.

A QUESTION IN TIME—Cancer Control. 20 min.

THE DOCTOR SPEAKS HIS MIND—Cancer Control. 20 min.

American Cancer Society, 47 Beaver St., New York 4, N. Y.

WHY WON'T TOMMY EAT—Methods of avoiding and handling children's feeding problems. Color. 18 min.

National Film Board of Canada, 620 Fifth Avenue, New York 20, N. Y.

REST AND HEALTH—Importance to youth of sufficient rest and sleep. Color and black and white. 10 min.

WAYS TO GOOD HABITS—Child Guidance. Color and black and white. 10 min.

Coronet Instructional Films, Coronet Bldg., Chicago 1, Ill.

HELPING THE CHILD TO ACCEPT THE DO'S—Social child development from viewpoint of positive instructions. 10 min.

HELPING THE CHILD TO FACE THE DON'TS—Companion piece for previous film, suggestions for handling everyday problems facing parents of small children. 10 min.

Encyclopaedia Britannica Films, Inc., Wilmette, Ill.

COMMUNICABLE DISEASES — For medical and public health groups. Color. 35 min.

Cutter Laboratories, Berkeley 10, Calif.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

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John Innes, 20 Back Sneddon St., Paisley, Scotland, Chief Sanitary Inspector, Public Health Dept.

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Lt. Col. William M. Lukens, M.C., Station Hospital, Mather Air Force Base, Calif., Station Veterinarian and Base Medical Inspector

John Rizzolo, M.D., 181 Mt. Prospect Ave., Newark, N. J., U. S. Army Medical Officer

Helen C. Rotthaus, 2237 North 22nd Place, Phoenix, Ariz., Secy., State Dept. of Health

Patricia G. Stewart, M.A., c/o Lt. (jg) W. S. Stewart, USN, Va-45 Naval Air Station, Jacksonville, Fla., Senior Physical Therapist, New York State Dept. of Health

Deed C. Thurman, Jr., 2180 Milvia St., Berkeley, Calif., Entomologist, U. S. Public Health Service

APRIL, 1949, JOURNALS WANTED

Due to an unusually heavy distribution of April, 1949, issues of the *American Journal of Public Health,* the headquarters office finds itself embarrassingly short of this number. It will be appreciated if members who can spare this *Journal* will send it collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19, N. Y.

A.P.H.A. membership application blank on page XXXIII

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

	Rooms with Bath	
Hotels	*Singles*	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	3.50–10.00	8.00–14.00
Statler	4.50– 7.50	7.00–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

* The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949

(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
Double Room without Bath at $..... per day for ..... persons
Single Room without Bath at $..... per day
Suite at $..... per day for ..... persons

ARRIVING: OCTOBER .... Hour ..... LEAVING: OCTOBER .... Hour .....
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name .....
Street Address .....
City ..... State .....

Mail Direct to the Hotel of Your Choice.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Medical Social Consultant for city and county health department. Newly created position offering interesting experience in developing a program. Required degree in Medical-Social work and minimum of three years' experience in discharge planning. Write: Personnel Office, City and County Bldg., Denver, Colo.

Veterinarian—public health, graduate of approved school, eligible for licensure; experienced in meat inspection, epidemiology and general sanitation; considerable knowledge of ordinances and health standards; must have administrative ability. Liberal employee benefits. Write: Personnel Office, Rm. 409, City and County Bldg., Denver, Colo.

Public Health Nurses—Three new merit system positions have been established in full-time health departments located in western Washington. Salary range is $3,000 to $3,720 per annum, plus travel allowance, vacation and sick leave with pay. Write: Dr. J. A. Kahl, State Director of Health, 1412 Smith Tower, Seattle 4, Wash.

Medical Director — Quadri - County Health Department headquarters, Golconda, Ill. Applicant must meet the minimum requirements of the Illinois Department of Public Health. Salary $7,200–$8,400 plus 7¢ per mile with personal car; 40 hour week. Rural experience necessary. Write: W. H. Birch, D.D.S., Rosiclare, Ill., giving age, experience, source of M.P.H. and recent photo.

City Health Officer for city of 75,000; northeastern seaboard. Health Officer will have some responsibilities for local hospital. State salary requirements. Write Box A-65, Employment Service, A.P.H.A.

Young Physician, trained in public health for position of Deputy County Health Officer. Salary $7,000 a year, plus traveling expenses. Opportunity for good experience in a well organized health department in Michigan. Position is immediately available. Write: Box A-66, Employment Service, A.P.H.A.

Health Officers for state and local health departments. Salary $7,200 to $10,020 a year plus travel expenses. Graduates of Class A Medical Schools with one year rotating interneship. Experience preferred. Merit status, vacations, sick leave, retirement. Write: Harold M. Erickson, M.D., State Health Officer, 1022 S.W. 11th Avenue, Portland, Ore.

Senior Sanitary Engineer — exceptional opportunity in Westchester County Health District; rural and urban problems in all fields of public health engineering; sanitary or public health engineering degree and four years in this field, or equivalent combination of education and training; total compensation now offered is $4,200. Write Westchester County Department of Health, White Plains, N. Y.

Physician (male) as Medical Director and assistant to Public Health Officer. Some experience in venereal disease control desirable but not essential. Will have charge of communicable disease and city school health control. Salary $7,290–$8,000, transportation allowance; annual and sick leave and retirement benefits. Must be registered in State of Michigan or have reciprocal registration. Write: Secretary, Personnel Advisory Board, City Hall, Saginaw, Mich.

County Health Commissioner — physician for General Health District, population 45,000. Good local coöperation. Salary $7,500 to $9,000 depending on training and experience. Travel allowance at 6¢ up to $70 in addition to salary. Write: John Eiferd, Sr., Pres., Columbiana County Board of Health, 125 W. 5th St., East Liverpool, Ohio.

Professor of Public Health and director of Student Health Service—12 month appointment, one month vacation. Salary around $7,700 per year. Write the Dean, University of South Dakota, School of Medicine, Vermillion, S. D.

Assistant Director of Public Health—southern city of over 200,000 in City Public Health Department of 150 employees. Must have M.D. and either Masters degree in Public Health or equivalent in experience. Salary $6,144–$7,368. Write Box A-67, Employment Service, A.P.H.A.

Public Health Nursing Supervisors for agency undergoing reorganization from

specialized to generalized program. Beginning salary $4,200 per year. Minimum requirements—bachelor's degree, completion of approved program of study in public health nursing, course in supervision, three years in family health program, including supervisory experience.

Public Health Nurses—Beginning salary $3,000 per year. Minimum requirements—completion of approved program of study in public health nursing. Preference given for experience. Write: Miss Janice Mickey, Chief, Bureau of Public Health Nursing, Dept. of Public Health, City-County Bldg., Pittsburgh 19, Pa.

Public Health Dentist—Quadri-County Health Department, headquarters at Golconda, Ill. Applicant must meet the minimum requirements of the Illinois Department of Public Health. Salary $4,800 for the first three months, after which it will be paid at the rate of $5,000 per year with a maximum at the present time of $5,300 plus 7 cents per mile for travel with personal car; 40 hour week. Rural experience necessary. Write W. H. Birch, D.D.S., Rosiclare, Ill., giving age, experience, source of D.D.S., and recent photo.

Health Officer and Director for midwestern city-county health department. Salary range $7,600–$9,100. Write Box A-68 Employment Service, A.P.H.A.

Young Physician interested in health officer training. Training asignment to be made in Maricopa County for one year, followed by training at the Department's expense at a school of public health. Salary range is $5,100–$5,820. Write: J. P. Ward, M.D., Director, State Department of Health, Phoenix, Ariz.

POSITIONS WANTED

Health Educator, woman, qualified in community and school health education; B.S. in health education and partial credits for Master's degree. Teaching experience includes college health education teaching and supervisor of health education and principal in public schools. Community experience includes community chest and voluntary health agency positions. Considerable experience in writing and lecturing. Interested in responsible opening school or community health work or as coördinator. Write Box HE-13, Employment Service, A.P.H.A.

Veterinarian, M.P.H. degree; 2 years' experience federal meat inspection; 3 years in milk hygiene and assistant in bacteriology in large university. Will consider openings in state or local agencies or institutions. Write: Box V-8, Employment Service, A.P.H.A.

Announcements

The West Virginia State Health Department will accept applications for the following positions:

1. **Medical positions at State Level**

   Deputy Health Commissioner
   Director, Cancer Control
   Director, Communicable Disease Control
   Director, Industrial Hygiene
   Director, Tuberculosis Control
   Director, Venereal Disease Control
   Director of Hospitals
   Director of Mental Hygiene
   Must be eligible for West Virginia Medical License. Salary range $7,200–$9,600.

2. **Local Health Officers**

   Minimum requirements: Graduation from Grade A Medical School. At least one quarter graduate study in public health in a recognized school of public health. Two years' full-time administrative experience in public health. Eligible for medical license in West Virginia. Salary range $7,200–$9,600.

3. **Nursing Positions**

   Registered Graduate Nurse—no formal public health nursing education or experience required. Salary range $2,400–$2,640.

   Public Health Nurse—Class B—completion of one semester's or two quarters' work in public health nursing in an approved program. Salary range $2,520–$3,000.
   Public Health Nurse—Class A—completion of one year's approved program of study in Public Health Nursing. Salary range $2,760–$3,240.

Public Health Nursing Supervisor (State Level)—completion of one year's approved program of study in public health nursing in addition to two years' experience in a family health program under qualified supervision, and one year's experience as a generalized public health nursing supervisor. Salary range $3,360–$3,840.

4. Engineer and sanitarian positions

Sanitarian—minimum requirements—college graduation, salary range $2,640–$3,120.

Junior Engineer—graduation from an accredited 4-year college with a major in Engineering, salary range $2,880–$3,840.

For all above positions write: Dr. N. H. Dyer, Commissioner, W. Va. State Department of Health, Charleston 5, W. Va.

Fellowships for Latin-American Physicians

The American College of Physicians and the W. K. Kellogg Foundation, with the coöperation of the U. S. Department of State and of medical schools in the U. S. A., Canada, and Latin-American countries, announce a program of postgraduate medical fellowships. Outstanding young physicians will be nominated by local committees in the countries to the south. Those to whom fellowships are awarded will be brought to this country for a year or more of special training.

Eligibility requirements include citizenship in the country from which application is made and familiarity with its culture and economy, graduation from an acceptable medical school, and completion thereafter of an internship of 12 months or more, ability to use the English language, and assurance of a subsequent teaching affiliation with a medical school in the native country. Those needing some training in English will be assigned to a special course for the purpose in the United States.

The American College of Physicians, operating through its Committee of Fellowships and Awards, will undertake to arrange a suitable program of study in internal medicine or its subspecialties, such as cardiology, gastroenterology, etc., in widely recognized medical educational centers in this country, and to place the fellows appropriately under preceptors in these institutions.

The W. K. Kellogg Foundation will provide each fellow with a monthly stipend adequate for his basic living costs, an allowance for necessary travel within this country or Canada, and will defray the tuition for courses recommended by the preceptor and approved by the sponsors. In view of the pressing need of Latin-American medical libraries, the Foundation will reimburse the fellow for the cost of required textbooks on condition that they become the property of the medical school in which the fellow will teach upon his return home.

Representatives of the Foundation will visit the fellows periodically during their stay in this country for conferences with them and their preceptors, thus to follow their progress. They will also be visited at intervals after their return to their home institutions in an effort to evaluate the end results of their training and to offer any possible assistance to improve teaching, research, and practice in the field of internal medicine in their respective countries.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Professor of public health and director of student health service; teaching duties in preventive medicine and public health, only; Middle Western university. (b) Director city-county health department; public health certificate or degree, several years' experience required; minimum $10,000; Pacific Coast. (c) Young woman physician to join staff of student health department; young women's college; East. (d) Public health physician to direct school health program; enrollment, 12,000; winter resort city; Southwest. (e) Director student health department; coeducational institution; 4,000 students; East. (f) Public health physician; city-county department; Pacific Northwest. (g) Public health physician to direct district of ten counties; Middle West. (h) Public health physician to direct division of geriatrics and adult hygiene; Middle West. PH7-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—PUBLIC HEALTH DENTISTS FOR FOLLOWING: (a) To direct dental health program for children; United States dependency; duties: include supervising and training native graduate nurses as dental aides; $7,000. (b) Tri-county health department; Middle West. PH7-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Health educator to join faculty, university department of health; rank: instructor or assistant professor. (b) Sanitary engineers; health department serving population of 300,000; should be qualified to direct sanitation program including all phases of environmental health. (c) Health educator; Master's in public health desirable; New England division of national organization. (d) Health educator; Master's required; Southern California. (e) Chief, vital statistics bureau; should be qualified to serve as general consultant in statistics to entire department and serving on faculty of medical school. PH7-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—PUBLIC HEALTH NURSES FOR THE FOLLOWING: (a) To direct public health nursing department; generalized program; better than average facilities; town of 35,000 near university medical center. (b) Student health appointment; young women's college; East. (c) Administrative position; well staffed department, outside Continental United States. (d) To direct pediatric clinic; university medical center; West. (e) To direct public health nursing; metropolitan department of health; $5,000. (f) To direct visiting nurse association, long established; university medical center; staff of five supervisors, 28 field staff. (g) Student health appointment; one of country's largest universities; September. (h) Staff nurses; bi-county unit; generalized program; Pacific Northwest. PH7-4 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Health Educator; Master's degree, Public Health, Eastern university; four years, health educator, county health department; three years, health coordinator, liberal arts college; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Health Educator; B.S. (Public Health Nursing); M.S. (Health Education); prefers teaching Health Education in schools or colleges; at present assistant professor university school of public health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public Health Dentist; graduate training, public health dentistry, Michigan; several years' successful general practice before specializing; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public Health Nurse Administrator; B.S. (Education); M.P.H.; four years, consultant in public health and school nursing, metropolitan health department; past several years, director, health education program, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public Health Physician; M.D., M.P.H., eastern universities; five years, chief health officer, department of ninety personnel including nine full-time public health physicians; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary Chemist; M.S. (Sanitary Chemistry); four years, water chemist, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

SUMMARIZING THE PENNSYLVANIA STUDY

The report of the study of Pennsylvania's health services, made under the supervision of Roscoe P. Kandle, M. D., field director of the A.P.H.A., was completed and presented to Governor Duff and Secretary of Health Vaux in February, 1949, in an edition of 1,500 copies, about 1,000 of which were distributed in Pennsylvania and the remainder to a wider public. This was one of the series of state studies which have been subsidized by the Commonwealth Fund of New York during the past 10 years.

Perhaps the initial impetus for the study was given by the Medical Society of Pennsylvania through its Commission on Public Health and Preventive Medicine. Its chairman is Pascal F. Luchesi, M. D., Superintendent and Medical Director of the Philadelphia General Hospital. With the accession to office both of Governor James H. Duff and State Health Secretary, Norris W. Vaux, M. D., and their interest in "a thoroughgoing evaluation of the Commonwealth's public health administration," they jointly requested the A.P.H.A. to make the study. In carrying out the study not only did experts in the various fields of public health serve as consultants, but workshops and other meetings with groups of Pennsylvania citizens formed an integral part of the evaluation. Thus the citizens themselves had a hand in shaping conclusions and recommendations.

Citizen interest in the study and its findings was also made evident in a series of meetings in various parts of the state. These were called by tuberculosis associations, councils of social agencies, community nursing services, and others to discuss problems relevant to the study. Even before the final report was presented to the Governor there was thus created public interest and discussion.

Now a digest of the report has been published in the February, 1949, Commonwealth: *The Magazine for Pennsylvania*. It was prepared by the staff of the magazine. This is a bimonthly magazine prepared for distribution among the state's citizens with an interest in state and municipal affairs. Over 10,000 copies of this number are being distributed to local health administrators and others with a particular interest in community health services.

In the digest the authors have "followed the text of the Survey very closely, with no editorial elaboration." It summarizes the "seven objectives for a new era in Pennsylvania public health" as follows:

1. Increase the efficiency of public health forces.
2. Complete the task of reporting and controlling tuberculosis.
3. Continue to push the eradication of the more common major communicable diseases.
4. Bring all resources of science to bear against rheumatic fever.
5. Reduce materially the ravages of cancer.
6. Attack and vigorously apply active preventive measures to the serious, ever present, and currently increasing problem of mental illness.
7. Insure the continued maximum application of preventive measures to safeguard the health of mothers and children, of industrial workers, and of the older citizens of the Commonwealth.

The digest further summarizes the eight basic recommendations of the Survey as "eight keystones for building Pennsylvania's public health program." These recommendations are:

1. The establishment in the Department of Health of a unit of county or district pub-

lic health administration under a deputy secretary of health.

2. Develop minimum standards of performance for all phases of public health, and apply these standards to the service provided by the state and to the public health activities of each municipality. The insistence by the citizens of the Commonwealth that these standards be met and their acceptance by all health agencies will be necessary for maximum benefits.
3. Decentralize the Department of Health services by establishing district offices, with full-time, qualified district medical directors to administer all direct state services. Every local health worker, both official and voluntary, and all citizen groups should insist on the speedy development of this plan to bring public health services nearer to the people, and to set the stage for local health units. The background of this recommendation is that Pennsylvania's public health law, unique among the 48 states, provides for the direct operation by the State Health Department of local health services in what may roughly be defined as rural areas. Thus the state operates some local health services in each of the 67 counties of the state except Philadelphia and for more than one-fourth of the state's population and more than one-third of the population outside of Philadelphia.
4. Apply a merit system to all public health personnel which will include the best modern practices in recruitment, methods of selection, permanence of employment, equality and adequacy of pay, impartial treatment, and provision for economic security upon retirement. The report found that 90 per cent of health department employees are officially selected under the patronage system with the other 10 per cent in effect so selected although required to be approved by the Civil Service Commission.
5. Extend further professional training opportunities to all the public health workers of the state.
6. Establish public health units in counties, cities, or other municipalities or in combinations thereof, with the state providing supervision necessary to assure the maintenance of acceptable standards of performance.
7. Simplify, revise, and codify if necessary the laws relating to public health.
8. Reorganize the structure of the Department of Health to achieve a clear, direct line of service from the Governor, through the department to the people.

INTERNATIONAL MEETING FOR RABIES CONTROL

An international round table to discuss rabies control along the United States-Mexico Border was held in Nogales, Ariz., on April 26, 1949, under the auspices of the Pan American Sanitary Bureau and with the help of Dr. James H. Steele, D.V.M., Senior Veterinarian of the Atlanta Communicable Disease Center, in organizing the meeting. Dr. Fred L. Soper, Director of the Bureau, called the meeting to order. The following representatives were present:

Dr. Gustavo Argil, Undersecretary, Public Health and Social Welfare, Mexico

Dr. Martin D. Baum, Director, Veterinary Public Health Program, Colorado Department of Health

Dr. James Doughty, New Mexico Health Department

Dr. Jose Figueroa, Director General, Animal Husbandry, Mexico

Oscar Flores, Undersecretary, Animal Husbandry, Mexico

Dr. James H. Steele, U. S. Public Health Service

Dr. Oscar Sussman, Senior Veterinarian, New Jersey Health Department

Dr. Gerardo Varela, Director, Institute of Public Health and Tropical Diseases, Mexico

Dr. Kenneth S. Young, Director, Veterinary Public Health Program, Texas Health Department

ANNUAL MEETING OF SOUTHERN BRANCH

The Southern Branch of the A.P.H.A. held a spirited and successful meeting in Dallas April 14–16. About 400 participants came from 21 states, the District of Columbia, and Mexico. A session was sponsored by each of nine sections of the Southern Branch. In addition there were four general sessions including a banquet.

The Nutrition Section was organized at this meeting and had a full section program. The Biology Section reported the proceedings of its first annual meeting held in April, 1948.

Among the actions taken by the meeting were resolutions recommending pas-

sage of federal legislation insuring health services to every county in the nation, endorsing the research program of the National Institutes of Health, and endorsing the inscription of General William Crawford Gorgas's name in the New York University Hall of Fame. An amendment to the Constitution adding to the list of officers a delegate to A.P.H.A. was passed (*A.J.P.H.* 38:12: 1732 (Dec.), 1948).

The newly elected officers are:

President: George A. Denison, M.D., Health Officer, Jefferson County, Ala.
Vice-Presidents: James H. Stephens, Sanitary Engineer, South Carolina Department of Health
N. H. Dyer, M.D., West Virginia State Health Officer
J. V. Irons, M.D., Director of Laboratories, Texas State Board of Health
Secretary-Treasurer: Ben Freedman, M.D., Director, Public Health Training Center, Louisiana State Board of Health
Delegate to A.P.H.A.: John M. Whitney, M.D., Medical Director, Midwestern Area, American Red Cross

MASSACHUSETTS PUBLIC HEALTH ASSOCIATION

The spring meeting of the Massachusetts Public Health Association was held April 28 at the Massachusetts Institute of Technology in Cambridge, with section meetings devoted to newer developments in cancer control, a panel of health officers on local health department utilization of federal funds, nutrition services in the Boston area, and a panel on accident prevention as a community problem. The final general session was a panel on Community Planning in an Atomic Age led by Shields Warren, M.D., director of the division of biology and medicine, Atomic Energy Commission.

WATER- AND MILK-BORNE DISEASES

The Division of Sanitation, Milk and Food Branch, U. S. Public Health Service, has published another of its summaries of disease outbreaks from water, milk and milk products, and other foods. One summary gives a consolidation of information on reported cases of disease transmitted through milk for the years 1923–1947; another of disease transmitted through water, milk and milk products, and other foods for 1938–1947. As in the past, there has been appended a brief description of each disease outbreak reported in 1947 in which water, milk and milk products, or other foods served as the responsible vehicle.

1949 I.E.S. GOLD MEDAL AWARD

Dr. Ward Harrison, retired Director of the Engineering Division of General Electric Lamp Department, has been awarded the 1949 I.E.S. Gold Medal by the Illuminating Engineering Society. The I.E.S. Medal is the Society's top distinction and is awarded each year "for meritorious achievement conspicuously furthering the profession, art, and knowledge of illuminating engineering." Dr. Harrison has consulted on several occasions with the Joint A.P.H.A.-I.E.S. Committee studying the need of research in illumination.

END OF TUBERCULOSIS IN 1965

The New York State Committee on Tuberculosis and Public Health at its annual conference in May set as its goal the "rooting out" of tuberculosis in the state by 1965. To this end it voted a program of continued coöperation with all governmental agencies and allied groups, with special emphasis on public education, early discovery through chest x-rays, adequate hospital facilities, and rehabilitation service.

HELP IN PLANNING CONTINUOUS SAFETY CAMPAIGNS

The *Home Safety News Letter* was launched in May as a bimonthly by the Home Safety Conference of the National Safety Council. It is designed to serve as a continuous planning guide

for home safety committees and organizations participating in community home safety programs. Instead of one home safety week it suggests every week as a home safety week. The first issue has detailed suggestions for vacation safety, farm safety, canning safety, and for the look ahead toward building safety, play safety, etc.

Available from National Safety Council, 20 N. Wacker Drive, Chicago 6, $1 or a combination of Home Safety Kit, *Home Safety Review*, and the *Newsletter*, $2.

LOCAL HEALTH SERVICES DIRECTORS MEET

At the 3rd annual meeting of the Association of State and Territorial Directors of Local Health Services in Memphis in April, V. A. Van Volkenburgh. M.D., of New York, was elected President. Other new officers are:

1st Vice President: John Williams, M.D., Missouri
2nd Vice President: J. K. Altland, M.D., Michigan
Secretary: Trois Johnson, M.D., Louisiana
Member, Executive Committee: Paul Q. Peterson, M.D., Ohio

Robert E. Rothermel, M.D., Assistant Field Director, and Charles B. Frasher, Field Consultant of the A.P.H.A. Staff were on the program, as were Carl Buck, former field director, and Joseph W. Mountin, Harald M. Graning, M.D., and Donald Simpson of the Public Health Service.

The 1950 meeting of the local health service directors has been scheduled for March in New Orleans.

CHARLOTTE FLUORINATES WATER SUPPLY

On April 1, Charlotte, N. C., became another city in the United States and Canada where domestic water supplies are being fluorinated for expected dental health benefits. The Charlotte Fluorination Demonstration is a fact finding project under the direction of the Charlotte Health Department and paid for by special appropriation of the City Council. Pre-fluorination studies were made with maximum participation of citizen and professional groups. Citizen queries as to taste, effect on goldfish, and photographic solutions antedated the actual introduction of fluoride.

INDIANA CODIFIES ITS HEALTH LAWS

The 1949 session of the Indiana General Assembly passed and the Governor has signed the codification bill of the Indiana State Board of Health. This consolidates the more than 100 Acts dealing with public health, the first of which was passed in 1881, into one Act which has eliminated the confusion, ambiguity, overlapping, and duplication that existed among the separate provisions. It does not make any material change in the substantive law. The laws have been collected into five major groupings—administration, disease prevention and control, vital statistics, sanitation, food, drugs and cosmetics—and a miscellaneous category. L. E. Burney, M.D., is the state health officer under whose general direction this codification was made. The address of the State Board is 1098 W. Michigan St., Indianapolis 7.

CONNECTICUT EXPANDS MENTAL HEALTH PROGRAM

An advisory committee of nine leaders in the fields of psychiatry, health, juvenile problems, social work, and education to plan expansion of Connecticut's mental health program has been appointed by Dr. Stanley H. Osborn, State Health Commissioner; funds will be available under the provisions of the National Mental Health Act. Dr. Elias J. Marsh, Jr., acting director of the State Department of Health's Bureau of Mental Hygiene, will direct the expanded program.

HONOR TWO FLORIDA HEALTH WORKERS

Two staff members of the Florida State Board of Health have been honored for outstanding work in their fields. Roger F. Sondag, M.D., Director, Bureau of Preventable Diseases, was awarded a bronze medal by the American Cancer Society "for distinguished service in cancer control." The Florida Engineering Society selected David B. Lee, M.S., Chief Sanitary Engineer of the board, for exceptional service to the engineering profession of Florida.

GORGAS AWARD TO DR. DEAN

The Association of Military Surgeons of the United States has named H. Trendley Dean, D.D.S., to receive the 1949 Gorgas Award for "outstanding contributions in the field of military medicine." Dr. Dean, who last September was named director of the National Institute of Dental Research, has been with the Public Health Service since 1921, in charge of dental research since 1931. His work on fluoride treatments "may lead to the mass prevention of dental decay."

The award, which is sponsored by the Philadelphia pharmaceutical manufacturers, Wyeth, Inc., will be presented at the annual meeting in Washington on November 11, of the Association of Military Surgeons.

KANSAS PUBLIC HEALTH ASSOCIATION

The 7th annual meeting of the Kansas Public Health Association was held in Pittsburg, April 25–27. An interesting program was developed around the theme, "A Program for Public Health Services in Kansas." Speakers from out-of-the-state included:

John K. Altland, M.D., Bureau of Local Health Services, Michigan Department of Health
Donald A. Dukelow, M.D., Bureau of Health Education, American Medical Association
John E. Gordon, M.D., Professor of Epidemiology, Harvard School of Public Health
Elberton J. Tiffany, M.D., Atlanta Communicable Disease Center
Maysil M. Williams, M.D., Regional Medical Director, U. S. Children's Bureau
Gertrude Morris, R.N., Territorial Nursing Supervisor, Metropolitan Life Insurance Company

The Association voted to meet jointly with the Missouri Public Health Association in Kansas City, Mo., in 1950.

New officers were elected as follows:

President: James M. Mott, M.D., Director, Lawrence-Douglas County Health Department
President-elect: Vernon M. Winkle, M.D., Director, Kansas City-Wyandotte County Health Department
Vice-President: Roberta Foote, R.N., Director Public Health Nursing Education, State Health Department
Secretary-Treasurer: Evelyn Ford, Records Consultant, State Health Department

MISSOURI PUBLIC HEALTH ASSOCIATION

The 1949 Annual Meeting of the Missouri Public Health Association was held in Jefferson City, May 4 to 6, and at this time the following officers were elected:

President: J. Earl Smith, M.D., St. Louis
President-elect: Ina Collins, R.N., Poplar Bluff
First Vice-President: Cecil A. Z. Sharp, M.D., St. Louis
Second Vice-President: Jeanette Burchard, Springfield
Treasurer: John Buxell, St. Louis
Secretary: Albert W. Happy, Jr., Jefferson City
Representative to A.P.H.A. Governing Council: Joseph C. Willett, D.V.M., St. Louis
Representative to Southern Branch, A.P.H.A.: John W. Williams, Jr., M.D., Jefferson City

The 1950 Annual Meeting will be held jointly with the Kansas Public Health Association on April 24, 25, and 26 in Kansas City, Mo.

ARIZONA PUBLIC HEALTH ASSOCIATION

The 19th Annual Meeting of the Arizona Public Health Association was held in Prescott, May 12 and 13, with some 140 members attending. Using the

workshop plan of conducting the sessions, the convention was enthusiastically dubbed by the members as one of the most successful in the history of the organization.

Dr. Robert E. Rothermel, Assistant Field Director, A.P.H.A., addressed the final general session, and Senator Sam Head, the banquet session.

Newly elected officers of the association are:

President: Marion Sprague
President-elect: C. E. Reddick, M.D.
Vice President: Margaret Eacrett
Secretary: Dorris Rakop
Treasurer: Mary Peterson

ILLINOIS PUBLIC HEALTH ASSOCIATION

At its ninth annual meeting held in Chicago April 7 and 8, the Illinois Public Health Association elected the following officers:

President: B. K. Richardson, Springfield
President Elect: Winston H. Tucker, M.D., Evanston
Secretary-Treasurer: Dorothy Fay Dunn, M.S.P.H., Champaign

OHIO ENRICHES FLOUR

A bill has been passed by the Ohio Legislature and signed by the Governor providing for the enrichment of white flour. It became effective on July 1.

NUTRITION BUREAU IN NEW YORK'S HEALTH DEPARTMENT

The New York City Health Department has created a new bureau of nutrition in its division of community health services, one of the five main divisions into which the department's services were reorganized by Health Commissioner Harry S. Mustard, M.D. During the coming year five nutrition clinics will be added in various sections of the city to the single one now in existence. Present educational activities in the publication of nutrition and diet advice will be expanded, as will the department's research studies on nutritional deficiencies and needs of children in different communities. Inservice training courses will be conducted for health deparent personnel on various phases of nutrition as they affect the work of other bureaus.

The director of the new bureau is Norman Jolliffe, M.D., who has completed the editing of a volume on clinical nutrition, slated for spring publication. He is a member of the Food and Nutrition Board, National Research Council, and Chairman of the New York City Food and Nutrition Committee.

PERSONALS

RUTH ACKLAND,† Assistant Chief of Health Education, Hawaii Territorial Department of Health, became Assistant Executive Secretary in charge of health education with the Territorial Tuberculosis Association on June 1.

CALVIN C. APPLEWHITE, M.D.,† Medical Director, Public Health Service of Federal Security Region 6 with headquarters in New Orleans, went on terminal leave on May 17 until his retirement from the Service on October 1, 1949. JOHN B. HOZIER, M.D.,† succeeds him as Acting Medical Director for Region 6.

GEORGE PACKER BERRY, M.D.,* formerly Professor of Bacteriology and Associate Dean of the School of Medicine and Dentistry at the University of Rochester, N. Y., has been appointed Dean of the Harvard Medical School and Professor of Bacteriology, as of July 1, to assume his duties in the fall. He succeeds SIDNEY BURWELL, M.D., who has resigned as Dean to devote his full time to teaching and research. Dr. Berry is Associate Editor of the *Journal of Immunology* and of *Bacteriological Reviews*, and a member of the editorial board of the *Journal of Bacteriology*.

FREDERICK J. BRADY, M.D., Assistant Chief, Laboratory of Tropical Diseases, National Institutes of Health,

represented the Public Health Service at the first meeting of the International Scientific Committee for Trypanosomiasis Research in London in February.

A. JUNE BRICKER, was named on April 4, as Director of the Home Economics Bureau of the Health and Welfare Division, Metropolitan Life Insurance Co., to succeed ELIZABETH GUILFORD, retired.

DEAN MARGARET BRIDGMAN, on leave from Skidmore College has been appointed for a 2 year period by the Russell Sage Foundation as a special consultant to universities in the field of nursing education to give advisory service on what constitutes sound professional preparation for nursing, how programs may be financed, the procurement of faculty, and the like.

MAX R. BURNELL, M.D., Medical Director of the AC Spark Plug Division of General Motors since 1931, has been appointed Medical Consultant effective July 1, succeeding CLARENCE D. SELBY, M.D.,* who retired on his 71st birthday after 14 years' service as General Motors Medical Consultant.

JEAN CRAWFORD, formerly with the New York State Department of Civil Service, joined the staff of the National Tuberculosis Association on May 1, to assume major responsibility in assisting the field on salary, classification, and general personnel problems.

CHARLOTTE CROCKETT and DORIS JOHNSON, formerly health education and rehabilitation director, respectively, of the Middlesex, Mass., Health Association, joined the staff of the Massachusetts Tuberculosis and Health League last February.

BARBARA DAVIS, is Executive Secretary of the Kauai (Hawaii) Tuberculosis Association, succeeding MABEL WILCOX,† who continues as a member of the Association's Board of Directors.

H. TRENDLEY DEAN, D.D.S.,* Director of the National Institute of Dental Research, Washington, D.C., has been awarded the 1949 Gorgas Award "for outstanding contributions in the field of military medicine."

EARL DEVENDORF,* Director of Environmental Sanitation, New York State Department of Health, Albany, has been appointed Acting Executive Secretary of the new Pollution Control Board of New York State, of which HERMAN E. HILLEBOE, M.D., M.P.H.,* is Chairman.

THOMAS A. DEVENY, JR., formerly probation officer with the Kanawah County Intermediate Court, W. Va., became Executive Secretary of the West Virginia Tuberculosis and Health Association on June 1, succeeding EDMUND P. WELLS,† who resigned to accept a similar position in Maine.

EDWARD P. EGLEE, M.D., was recently elected Chairman of the executive committee of the New York Tuberculosis and Health Association, Inc., succeeding DONALD B. ARMSTRONG, M.D.,* now President.

MARGARET MCIVER ERVIN,† a former Red Cross worker, is health education secretary of the South Carolina Tuberculosis Association.

FLORIDA PUBLIC HEALTH NEWS NOTES

WILLIAM J. PEEPLES, M.D.,† formerly Director of the Troup County Health Department, Ga., has become Director of the Monroe County Health Department with headquarters at Key West. He succeeds JAMES B. PARRAMORE, M.D.,† resigned because of illness.

J. C. MCGUIRE, M.D.,† formerly Director of the Copiah County (Mississippi) Health Department, is now Director of Hardee, DeSoto,

* Fellow A.P.H.A.
† Member A.P.H.A.

and Charlotte Counties Health Unit with headquarters at Arcadia.

PAUL W. HUGHES, M.D.,† has moved from Assistant Health Officer in Alachua County, to Health Officer of Broward County with headquarters at Fort Lauderdale.

L. MAX GARDNER, former Chief of Special Services for the Illinois Division of Vocational Rehabilitation, is now Field Secretary, Illinois Tuberculosis Association.

WRAY GARDNER, M.D., began his duties as Director of the Mental Health Section, Colorado State Health Department, on May 1, and on the faculty of the University of Colorado Medical Center.

FRANZ GOLDMANN, M.D.,* Associate Professor of Medical Care, Harvard School of Public Health, is on leave of absence until December, 1949, to serve as consultant to the Public Health Branch of the Civil Administration Division, Office of Military Government for Germany, under a project sponsored jointly by the Rockefeller Foundation and the American authority.

ANNIE W. GOODRICH, dean emeritus of the Yale University School of Nursing, at the recent Convention in Cleveland of the National League of Nursing Education, received a Mary Adelaide Nutting Nursing Award.

DORITHA GRAHAM, formerly Field Secretary for the Missouri Tuberculosis Association, has joined the staff of the Nebraska Tuberculosis Association.

PAUL D. HANEY,* formerly Associate Professor of Sanitary Engineering, University of North Carolina School of Public Health, has been commissioned by the U. S. Public Health Service and assigned to the Stream Sanitation Section, Water Sanitation Investigation Station, Cincinnati, Ohio.

EMMA HARLING, has returned to Colorado as Mental Hygiene Nursing Consultant in the Public Health Nursing Section, after completing an 18 month course leading to the Master of Arts degree at Columbia University.

WALTER T. HARRISON, M.D.,* Public Health Service Medical Director of Federal Security Region 10 with headquarters in San Francisco, since 1942, retired from the Service July 1. HENRY C. SCHUMACHER, M.D.,* succeeds him as Acting Director of Region 10.

DAVID H. HOLBROOK, who retires on June 30 as Assistant Director of the National Social Welfare Assembly, New York City, received special recognition in the form of a special volume of tributes written by outstanding leaders in the field of welfare for his distinguished contribution to the health and welfare field over the past 38 years.

PAUL J. HOUSER† was appointed Director of the Division of Public Health Engineering, Iowa State Department of Health, Des Moines, on September 1, 1948.

JOHN F. MAHONEY, M.D.,* Director of the Public Health Service Venereal Disease Laboratory, Staten Island, N. Y., late in April went to Norway, Denmark, and Sweden to give a series of lectures on Venereal Disease Control. Given under the auspices of WHO, the lectures were requested by the directors general of public health of the respective countries.

MARGARET ANN MCCARTHY has become Associate in Health Education of Illinois Tuberculosis Association.

PEARL MCIVER, R.N.,* Chief, Public Health Nursing, Bureau of State Services and President of the American Nurses' Association, has recently been in Europe representing the U. S. Public Health Service at the Royal Sanitary Institute Congress meeting, May 23–27, in Brighton, England. She also attended the following meetings of the International Council of

Nurses in Stockholm, Sweden: Board of Directors, June 6–7; Grand Council, June 8–10; and Interim Conference June 12–16.

ROLAND B. MITCHELL, PH.D.,† has resigned as Director of Laboratories for the Florida State Board of Health to become Head of the Department of Bacteriology at the School of Aviation Medicine, Randolph Field, Tex.

ROY J. MORTON,* formerly in the Department of Preventive Medicine and Public Health, Vanderbilt University, is now in the Health Physics Division, Oak Ridge National Laboratory, Tenn.

ANNA G. MURPHY, recently retired as Executive Director of the Waterbury, Conn., Anti-Tuberculosis League, was honored by the league's board of directors at a luncheon marking her completion of 40 years as a tuberculosis nurse.

ROBERT J. NEVILLE, M.D., of Teaneck, N. J., joined the medical staff of the National Foundation for Infantile Paralysis on February 15. He is a staff member of New York Orthopaedic Dispensary and Hospital and of the Bergen Pines Hospital, N. J., which specializes in the treatment of acute and chronic poliomyelitis cases.

ARTHUR L. REAGH, Senior Bacteriologist of the Massachusetts State Department of Health, resigned on March 31, 1949, after 49 years with the department, in which he began the production of smallpox vaccine in 1904.

EDITH E. REIGER, has joined the Mesa County (Colorado) Health Department as public health nurse.

MARY M. ROBERTS, retiring editor-in-chief of the *American Journal of Nursing*, after 28 years of service, received a Mary Adelaide Nutting Nursing Award at the recent 53rd Convention in Cleveland of the National League of Nursing Education.

KENNETH C. ROSS,† formerly with the San Diego County (California) Tuberculosis and Health Association joined the staff of the National Tuberculosis Association on April 1 to be in charge of the Association's Training Program.

MARJORIE RUOSS is the new Garfield County, Colorado, public health nurse.

RALEIGH L. STRINGER, has been named President of the newly organized Fisher County (Texas) Tuberculosis Association; CHESTER U. CALLAN, M.D., Second Vice-President.

MARION F. TRICE,* Chief Industrial Hygiene Engineer, Tennessee Department of Public Health, is on a year's leave of absence to join the Institute of Inter-American Affairs as Director of the Department of Industrial Hygiene, Ministry of Health of Peru. He is stationed in Lima.

THEDA L. WATERMAN * resigned in January as Coordinator of Health Services, Tuberculosis Institute of Chicago and Cook County, to become Executive Director of the Central Agency for Chronically Ill of Milwaukee, Wis.

W. W. YUNG, M.D.,† formerly of the Ministry of Health, Nanking, China, has been appointed Director of the Epidemiological Intelligence Station in Singapore, operated by the World Health Organization, effective April 22.

ARTHUR R. ZINTEK, M.D.,† has taken over the active direction of the Tuberculosis Control Work of the Wisconsin State Board of Health. His predecessor, ALLAN FILEK, M.D.,* is now Director of Local Health Administration.

DEATHS

ALICE C. BAGLEY, R.N., (Public Health Nursing Section).

VICTOR F. CULLEN, M.D., former superintendent of the four Maryland State Tuberculosis Sanatoriums, died March 9, after a long illness.

FREDERICK B. DART, M.D., Health Officer, Town of East Lyme, Conn., died February 27 (Health Officers Section).

HARRY F. LEEDS,† District Health Officer, Pitman, N. J. (Health Officers Section).

ALAMIRO VALDES-HERRERA, M.D.,† Coquimbo, Chile, died May 6 (Public Health Education Section).

JOHN T. WRIGHT, M.D. (Senior Surgeon, Regular Corps), of the Laboratory of Biologics Control in the Microbiological Institute, National Institutes of Health, died May 14 of a heart attack, at the age of 37.

CONFERENCES AND DATES

American Congress of Physical Medicine. Netherland Plaza Hotel. Cincinnati, Ohio. September 6–10.

American Hospital Association. 51st Annual Convention. Hotel Statler, Cleveland, Ohio. September 26–29.

American Occupational Therapy Association. Book-Cadillac Hotel. Detroit, Mich. August 20–27.

American Public Health Association—77th Annual Meeting, New York, N. Y. October 24–28.

American Water Works Association. Chesapeake Section. Wardman Park Hotel, Washington, D. C. November 2–4.

Commonwealth and Empire Health and Tuberculosis Conference. Central Hall, London, England. July 5–8.

First International Congress of Biochemistry. Cambridge, England, August 19–25.

Florida Public Health Association. George Washington Hotel. West Palm Beach, Fla. October 6–8.

International Association of Milk and Food Sanitarians. Deschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Minnesota Public Health Conference, Nicollet Hotel, Minneapolis, Minn. September 30.

National Association of Sanitarians. Biltmore Hotel, Los Angeles, Calif. August 15–18.

National Education Association. Hotel Statler, Boston, Mass. July 4–8.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y., November 7–9.

II Pan American Congress on Pediatrics. Mexico, D. F. November 2–5.

Third Inter-American Congress of Radiology. Santiago, Chile. November 11–17.

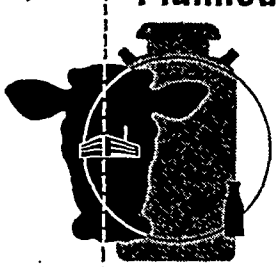
Washington State Public Health Association. Spokane, Wash. September 19-20.

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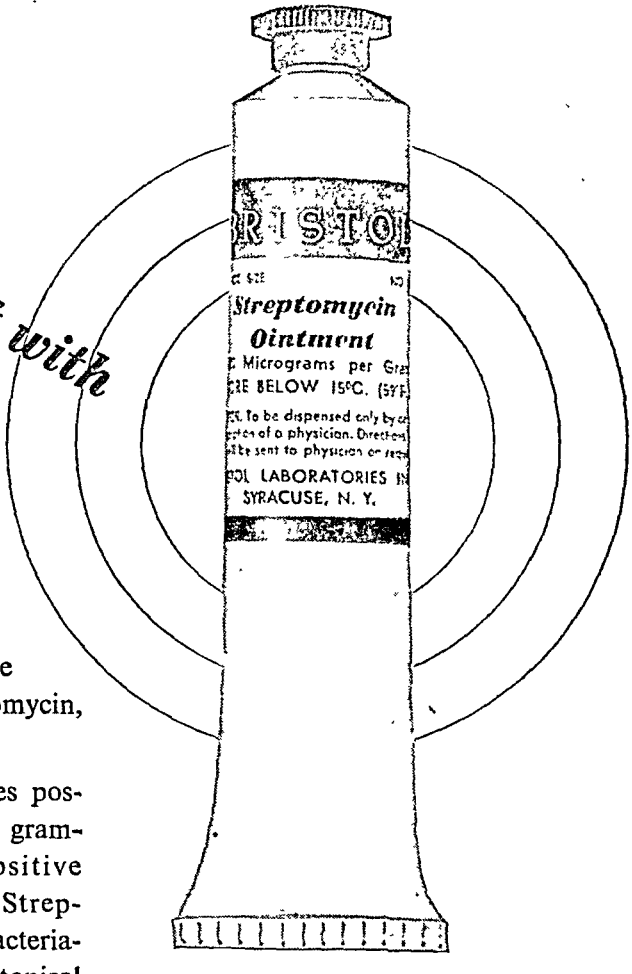
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THE NINTH EDITION

of

STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS

This manual, prepared by the Committee on Examination of Milk and Milk Products, outlines procedures for the routine microbiological and chemical examinations of the more common dairy products used as food. It includes directions for enumerating, isolating, and identifying members of the coliform group, *Brucella,* streptococci, tubercle bacilli, *Salmonella,* pathogenic *Shigella,* and enterotoxigenic staphylococci.

The resazurin reduction method for the examination of fluid milk is included in this edition. Procedures are given for the examination of condensed milk, dried milk, evaporated milk and of fruits, nuts, flavoring and coloring materials, eggs and egg products, sweetening ingredients and stabilizers when used as ingredients in frozen desserts.

The primary aim in the new edition is to aid the laboratory worker by maintaining uniformity of arrangement and style, by using a system of simple cross references, and by improving the index. To do this, the first chapter on "Selection and Interpretation of Quality Tests" is organized for the guidance of the administrator. The succeeding twelve chapters, now relatively free from interpretive and explanatory matter, provide tried and tested methods for the laboratory worker. A group of "Screening Tests," which do not have approval for unqualified use, but which permit more frequent examinations than otherwise could be made, appear in the last chapter.

The thirteen chapter headings are listed below.

1. Selection and Interpretation of Quality Tests
2. Microbiological Methods for Milk and Cream
3. Detection of Special Bacterial Groups or Species
4. Microbiological Methods for Butter
5. Microbiological Methods for Cheese
6. Microbiological Methods for Frozen Dessert Ingredients
7. Microbiological Methods for Frozen Desserts
8. Sterility Tests for Dairy Equipment
9. Tests for Sediment and Extraneous Matter in Dairy Products
10. Determination of Vitamins
11. Phosphatase Methods to Determine Pasteurization
12. Chemical Methods
13. Screening Tests

373 pages, 37 illustrations Published 1948 Price, $4.00

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Coreco Research Corp., New York, N. Y., Booth 118.

Corning Glass Works, Corning, N. Y., Booth 117.

Cream of Wheat Corp., Minneapolis, Minn., Booth 54.

Difco Laboratories, Inc., Detroit, Mich., Booths 63 and 64.

Display Masters, Brooklyn, N. Y., Booth 131.

Diversey Corp., Chicago, Ill., Booth 128.

Drinking Straw Institute, Inc., New York, N. Y., Booth 147.

Economics Laboratory, Inc., St. Paul, Minn., Booth 8.

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Emerson, J. H., Co., Cambridge, Mass., Booth 138.

Evaporated Milk Assn., Chicago, Ill., Booth 105.

Fleming-Hall Tobacco Co., Inc., New York, N. Y., Booth 113.

Florida Citrus Commission, Lakeland, Fla., Booth 100.

Galvanized Ware Manufacturers Council, Chicago, Ill., Booth 55.

General Electric Co., Lamp Dept., Cleveland, Ohio, Booth 110.

General Foods Corp., New York, N. Y., Booths 101 and 102.

General Mills, Inc., Minneapolis, Minn., Booth 74.

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Gomco Surgical Manufacturing Corp., Buffalo, N. Y., Booth 31.

Grune & Stratton, Inc., New York, N. Y., Booth 14.

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H. J. Heinz Co., Pittsburgh, Pa., Booth 98.

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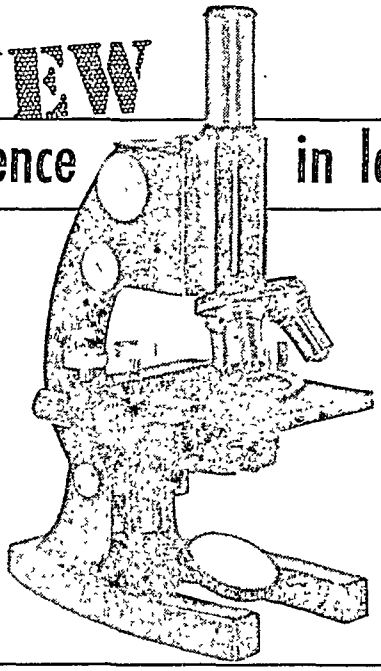
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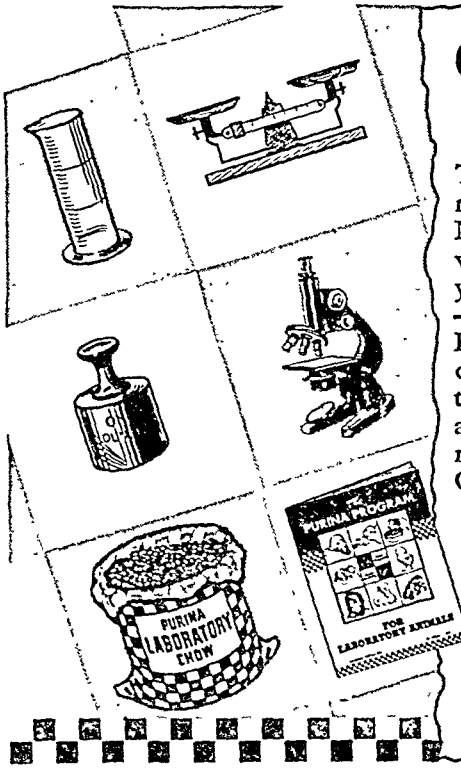
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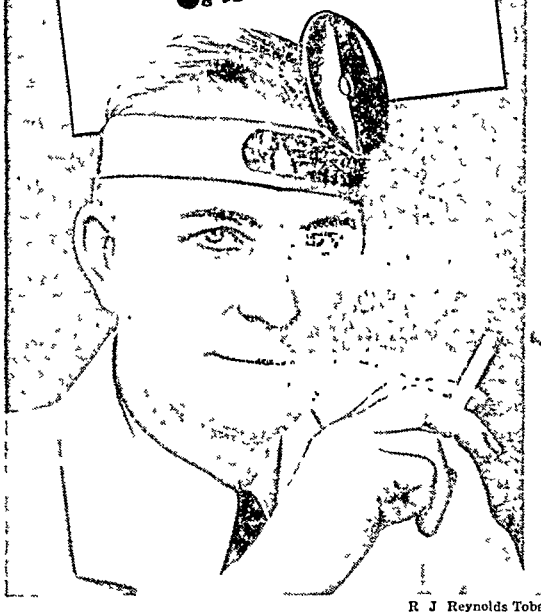
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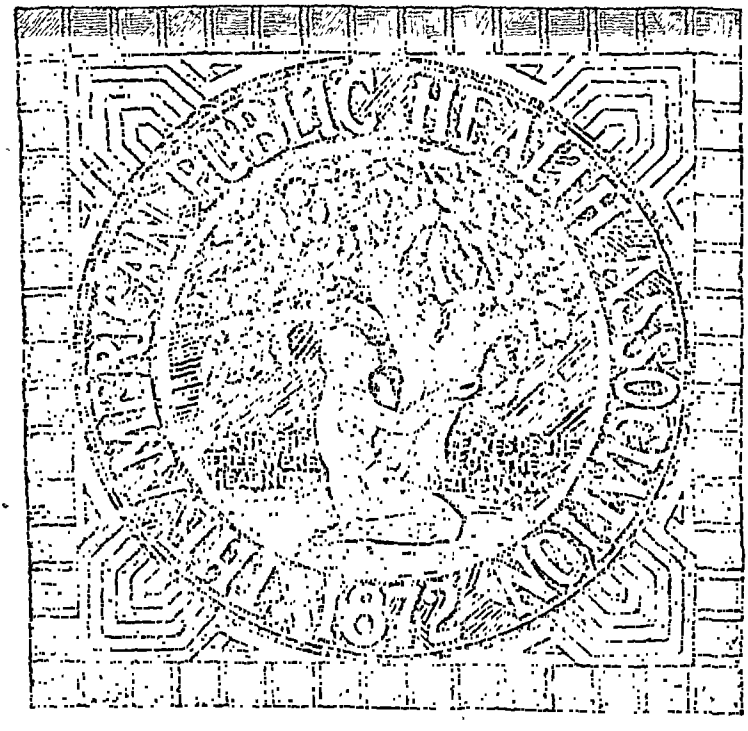
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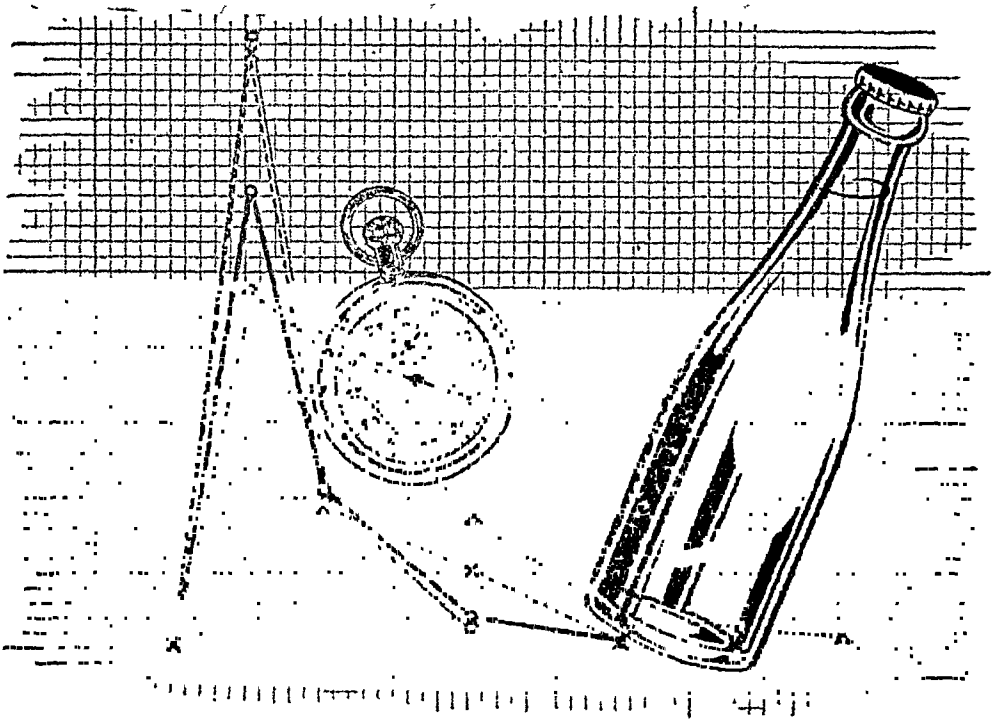
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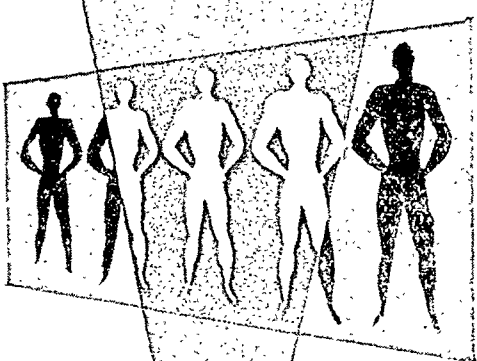


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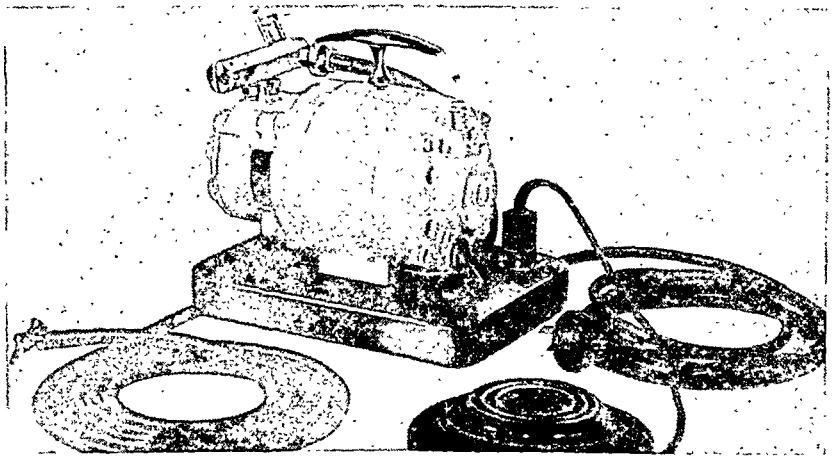
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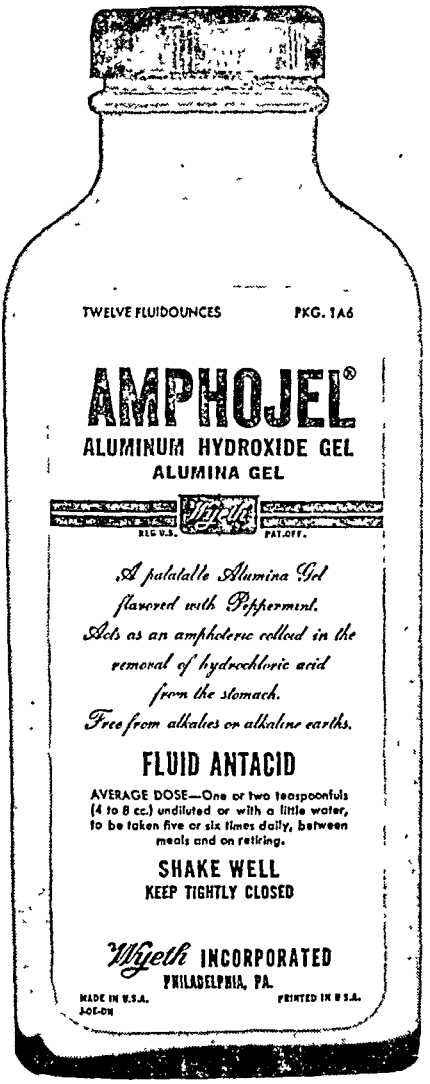
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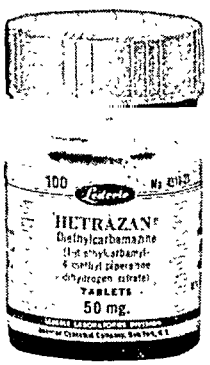
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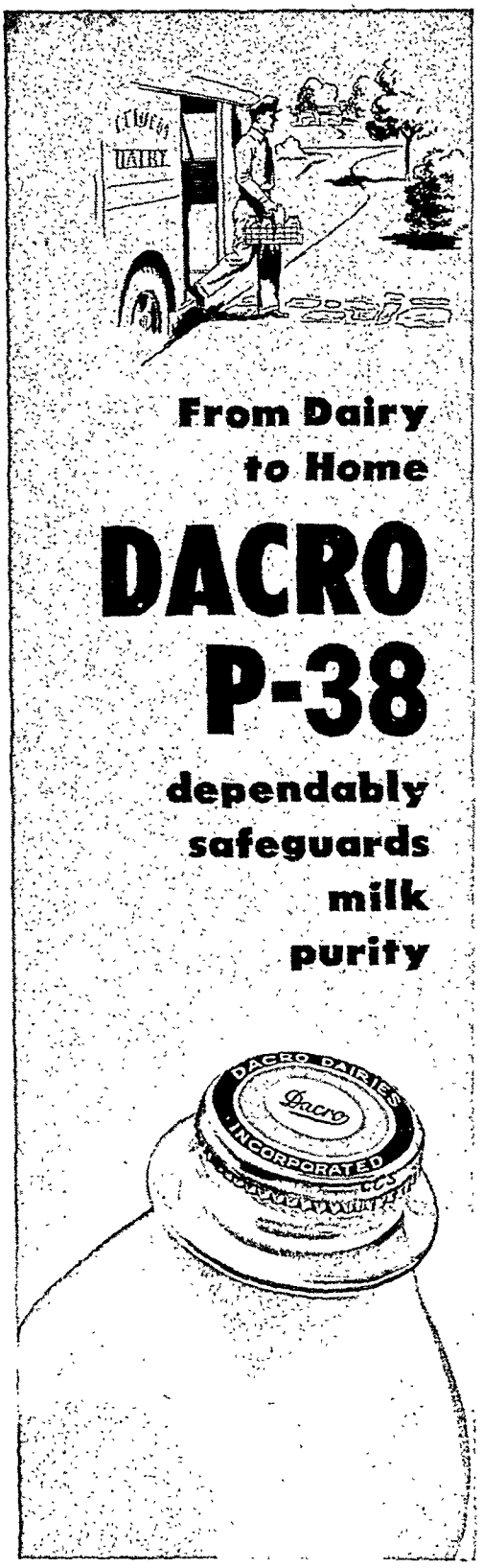
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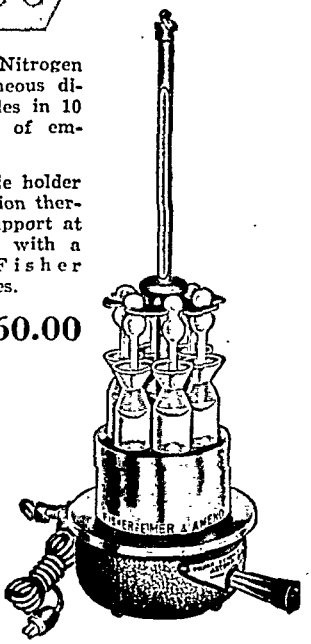


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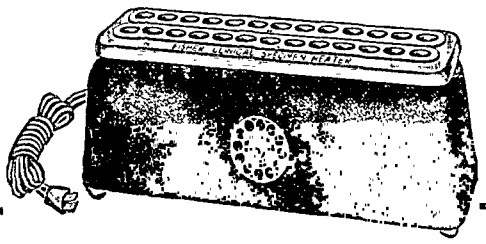
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Breakfast Habits

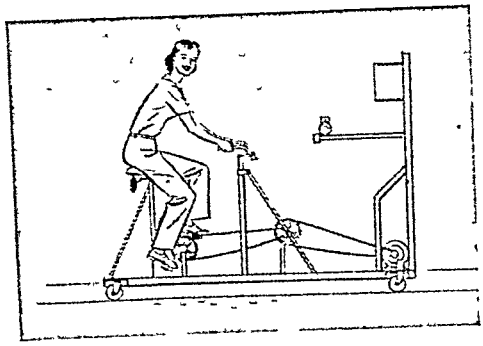
AND MAXIMUM WORK OUTPUT DURING PRE-NOON HOUR

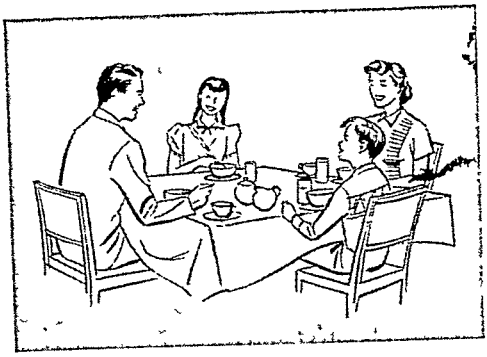
A recent carefully controlled study at the Departments of Physiology and Nutrition of a prominent medical college on the physiologic effects of various breakfast practices shows that habitual breakfast adequacy induces positive physiologic benefits which are objectively revealed by augmented maximum work output at the pre-noon hour. Conversely, the continued omission of breakfast or the taking of coffee only induces physiologic effects leading to a significantly lower maximum work output.

In the light of these findings and to the extent indicated, breakfast adequacy may be said to definitely contribute to physiologic efficiency for greater work accomplishments during the last forenoon hour.

An 800 calorie breakfast, a 400 calorie breakfast, coffee only, and no breakfast during three-week periods constituted the breakfast practices. After habituation to each of the breakfast practices, the maximum work output of six graduate women students, determined by the bicycle ergometer at pre-noon hours, provided the data which when carefully collated justified the following conclusions:

1. When "no breakfast" was the morning practice, maximum work output showed a significant *decrease* at the pre-noon hour.





2. Habituation to coffee only induced a similar *decrease* in maximum work output.
3. When habituation to the 400 calorie breakfast was attained after the coffee only period, a significant *increase* over the findings in the coffee only period in maximum work output resulted.

The conditions of the study did not permit a direct comparison of the effects of the heavy and light breakfasts on maximum work output.

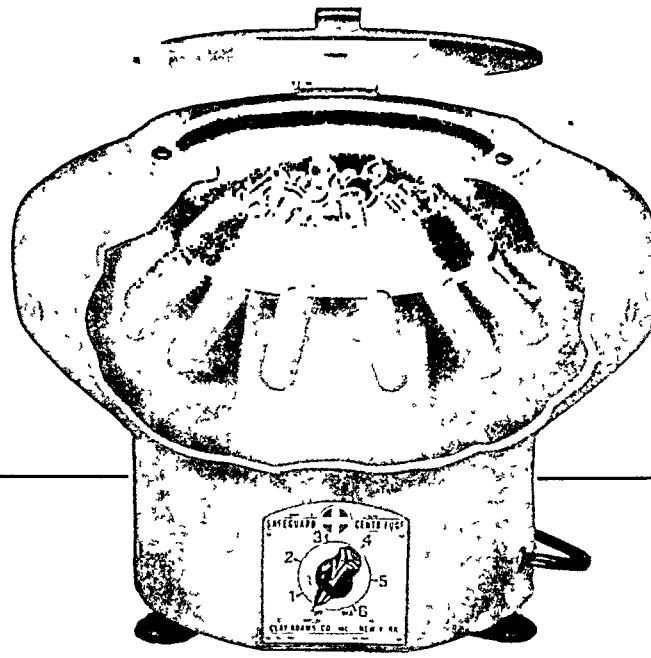
For the first time, this scientific investigation gives *direct experimental* support to the recommendation long advanced by nutrition authorities for eating a breakfast which provides from one-fourth to one-third of the daily nutrient and caloric needs. A good base on which to plan an adequate breakfast is the basic breakfast pattern consisting of fruit or fruit juice, cereal, milk, bread and butter. Although the investigators do not so state, the results of the study strongly imply that maximum work output in the late morning should be increased when faulty breakfast practices are replaced by the eating of better breakfasts.

The Seal of Acceptance denotes that the [illegible] statements made in this advertisement have been approved by the Council on Foods and Nutrition of the American Medical Association

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4. Candies are of high satiety value; eaten after meals, they contribute to the sense of satisfaction and well-being a meal should bring; eaten in moderation between meals, they stave off hunger.
5. Candy is more *than a* mere source of nutriment—it is a morale builder, a contribution *to* the joy of living.
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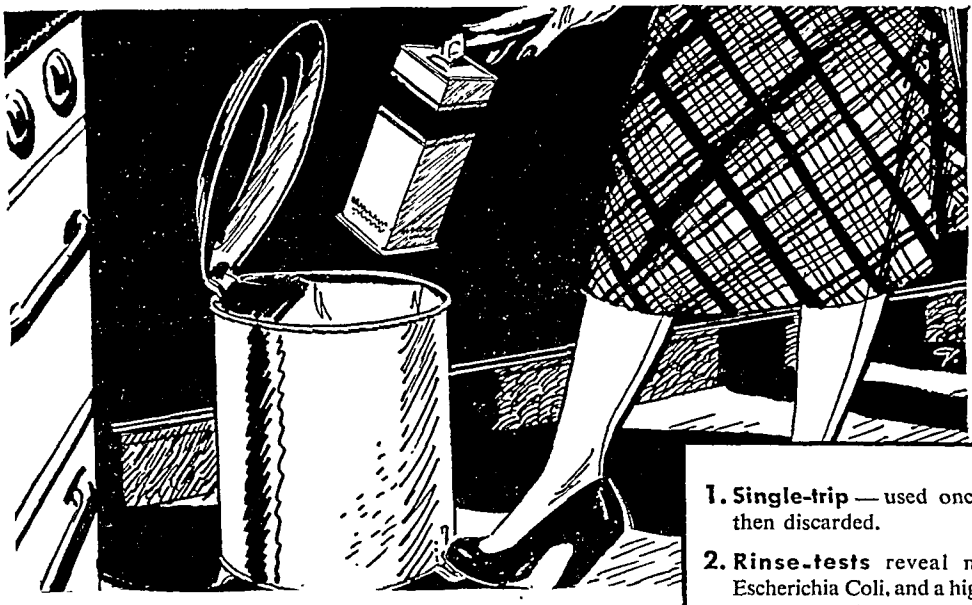
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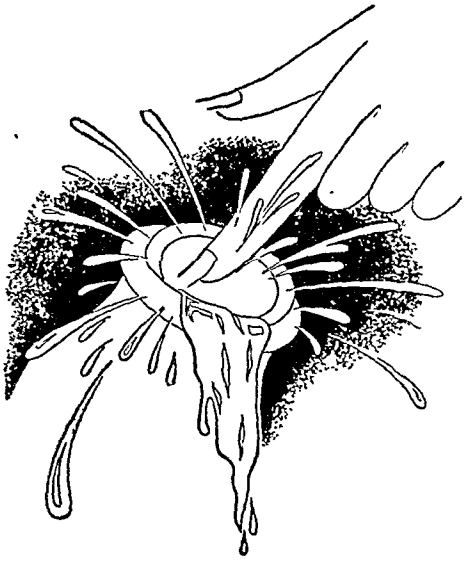


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(1) Editorial, J. A. M. A., 138:214, 1948.
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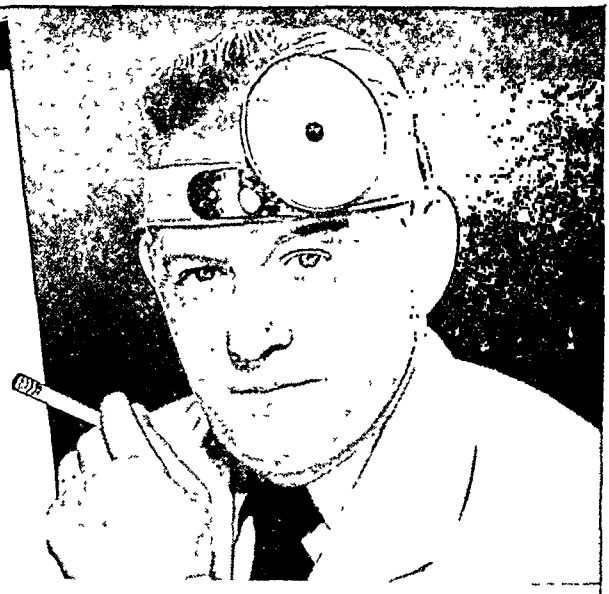
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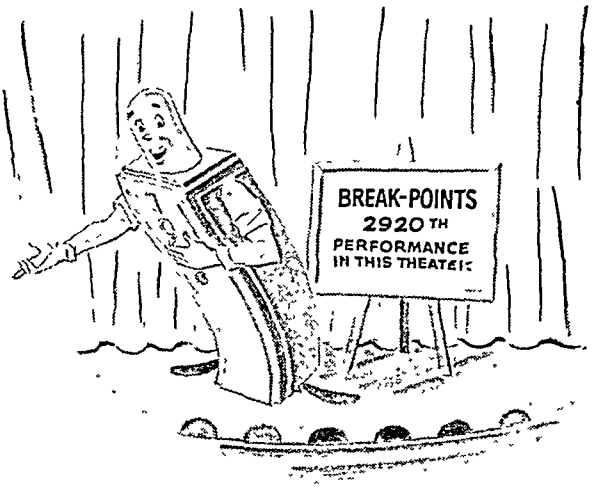
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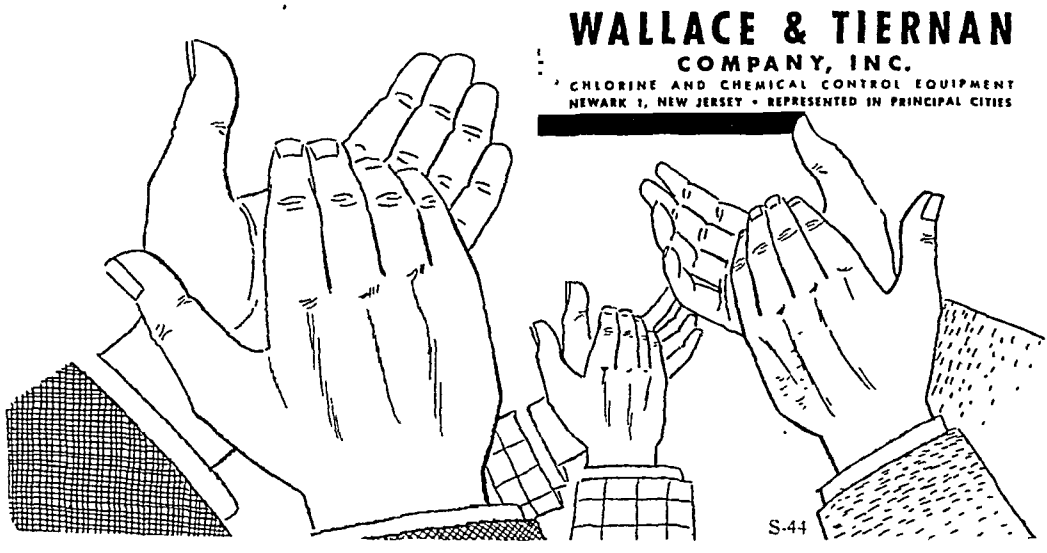
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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 August, 1949 Number 8

Psychological Factors in Atomic Warfare*

COL. JAMES P. COONEY, M.C.

Special Projects Division, Office of the Surgeon General, Department of the Army, Washington, D. C.

MANY of the ideas I want to discuss with you today are matters of opinion—and they are, in some cases, ideas on which the diversity of opinion seems to be a function of the number of people who have ideas. I want to talk to you about my ideas with the hope of stimulating thought and more careful consideration of a most important problem.

Please do not interpret any of my remarks as indicating anything less than the fullest respect for the phenomenon of radioactivity as a diabolical instrument of death and injury to man. I only want to point out that we are justified in taking a rather hardboiled attitude toward this subject. Since we have no choice but to live with it, we must keep it in proper perspective.

Since the advent of nuclear explosives in the so-called atom bomb, with its attendant ionizing radiations in massive amounts, unfortunate psychological reactions have developed in the minds of both the military and civilians. This reaction is one of intense fear and is directed against forces that cannot be seen, felt, or otherwise sensed. I have observed the reactions of the military, who were not acquainted with the technical details, on two missions, Bikini and Eniwetok, and the fear reaction of the uninitiated is appalling. The fear reaction of the uninitiated civilian is ever evident. It is of such magnitude that it could well interfere with an important military mission in time of war.

Whenever living cells are affected by ionizing radiation, it is detrimental. It must be realized that nature has been always bombarding the populations of the world with ionizing radiation since the formation of the universe—by constant exposure to cosmic radiations and to radiations emanating from natural radioactive elements—such as radon and thoron.

This kind of injury must be considered, not as standing by itself, but in connection with the total situation, i.e., weighed in relation to the objectives in view, both in regard to their importance

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under the circumstances and their probability of attainment. Unless we can thus integrate it with our whole philosophy of national defense, the atom bomb can prove a liability rather than an asset.

With the publicity emanating from the atom bomb, the term "Roentgen" has become a household word. A Roentgen is a term of physical measurement such as the "centimeter" or the "gram." It is based upon one of the physical effects of certain types of electromagnetic waves that cannot be measured with a yardstick. The large step from such a physical measurement to expected biological behavior in human beings is based upon experimentation on lower animals, empirical observations, and clinical investigations. There are, however, many blank spaces in our experience and many superstitions have been introduced. Since it is impossible to stipulate all conditions of experimentation and observation in most of the articles written about radiation for lay consumption, an idea has evolved in many minds that any and all radiation exposure will cause immediate and mysterious injury or death. This reasoning is fallacious, but it is also plausible and has become contagious.

The problem of radiation injury is not one which can be easily simplified. In fact, over-simplification of this danger may be the cause of a situation such as we are combating at this time. It seems desirable to explore radiation hazards more fully in relation to other hazards which are considered more common and acceptable.

The permissible radiation dose is 0.2 or 0.1 r per day, or 0.3 r per week according to your authority. It should no longer be called the "tolerance dose," for no amount of radiation should be tolerated without good reason. One is willing however to name a dose so small that a person might be exposed to it every day of his life and suffer no observable injury or shortening of his life span.

When one is dealing with radiation technicians or with industrial workers who are exposed to this hazard daily in their life's work, he can easily see how the maintenance of exposures at or below this level is a very desirable thing. Day-by-day contact with radiation or radioactive materials demands that a low limit of exposure be adhered to, if one is to avoid late complications of such chronic trauma. Similar occupational hazards exist in all branches of production—noxious gases and dust to the coal miner, the steel worker, and the chemical worker. It has been known for years that, if a miner is subjected to small amounts of dust containing silica, he eventually will develop silicosis, frequently complicated by tuberculosis, and perhaps leading to a fatal termination. For this reason, methods of counting and analyzing dust have been perfected, and forced ventilation systems have been established to minimize the danger. This does not mean that if an individual makes a one day visit to a mine and inhales 100 times the daily minimal allowance for miners that he will develop silicosis. This tolerance limit has nothing in its definition which refers to acute exposure. Neither is the 0.1 r per day tolerance limit related to acute exposure in radiation.

The total body dose of radiation received as an acute exposure is known from therapeutic experience to vary with the patient. This, and the lethal dose for man, have not received the same attention from rule-making bodies that the "permissible dose" has had. We may take 450 r as the median lethal dose.

Going further down the scale, one may consider a limit of 200 r, which may cause radiation sickness in 50 per cent of human subjects when delivered, as an acute dose of total body radiation. Some subjects may be quite sensitive to radiation and others quite resist-

ant, so it is difficult to calculate the precise effects to be expected.

It is not unusual to subject a patient to multiple x-rays of the skull, spine, long bones, gastrointestinal tract, kidneys, sinuses, etc., in a relatively short space of time, thus subjecting him to a dose of radiation which may well approach 25 r. These procedures are not used without purpose and the benefit from the information gained outweighs all fear as to the possible injury from radiation. Full body radiation in doses of the order of 25 r to 100 r have been given to patients for treatment of various conditions. Again, these exposures are prescribed for a purpose which outweighs the fear of radiation injury.

It is not the purpose of this article to underestimate or understate the radiation hazard. But from a military standpoint the physical danger must be evaluated against the objective to be gained.

War is fought with the knowledge that men will be killed. Campaigns are planned with expectation of losing so many thousand men. If you call these "acceptable hazards" then it is obviously not wise to treat radiation hazards very differently. If acceptance of radiation hazard will lessen the other military hazards, then that is what one should accept. This can only be done, however, if the attitude of the men exposed is psychologically similar toward the two types of hazard. If they are going to be as much terrified by the knowledge that a recent atom bomb explosion has contaminated the ground they are walking over as they would be by seeing one in ten of their bodies fall by machine gun fire, one cannot apply the "ideal" solution. What is dominant for actual percentage survival is the resultant of all the actual hazards. But for battle discipline and military effectiveness the dominant measure is not the hazard itself but the soldiers' estimation of the hazard.

Men at war suffer many hazards, acute and chronic, besides bullets. Malaria, venereal disease, exposure to cold and wet, starvation, etc. Some of these, e.g., VD, are under-evalued by the doughboy. Others, e.g., filariasis, are grossly over-evalued. At present radiation is perhaps over-evalued worst of all, partly due to our great care in Operations Crossroads. That operation was conducted at the peacetime level of safety to personnel. Unless we had openly proclaimed immediate danger of war, the military level for hazardous training programs, such as we had actually adopted during the war, using live grenades and live ammunition in the machine guns, was not tolerable at Bikini. It must be emphasized that acceptable hazards in a peacetime operation, cannot be adhered to in wartime.

Psychological training for the military level of acceptable radiation hazard is possible and should be prosecuted, even though operational field training does not permit this to be accomplished at the present time.

We hear much about sterility as a result of exposure to ionizing radiation. It must be borne in mind that sterility results only from a large dose of acute radiation, or from smaller doses over a long period of time—a matter of years. Sterility also results from other accepted hazards encountered in war—venereal disease is one of the foremost causes of sterility. We are aware of hundreds of paraplegics resulting from spinal fractures, gun shot wounds of the cord, etc., during the last war who are not only sterile but impotent. Leukemia may be another late result in casualties from repeated radiation, but amebic dysentery and schistosomiasis carry a great delayed hazard, and so does the effect of beriberi, which was so prevalent among our prisoners-of-war.

I have knowledge of a death at Bikini caused by drinking wood alcohol. There were other deaths due to various types of accidents. At Eniwetok we had a

death due to drowning, one due to a truck accident, and one due to a fracture of the skull encountered in a fight. A sailor sustained a fracture of the cervical spine with severance of the cord by diving into shallow water. He will be paralyzed, sterile, and impotent as long as he lives. None of the above tragic deaths received national news publicity. However, had we had a single death due to radiation, would it have been publicized? It would have received front page publicity throughout the country.

During August, 1946, I interviewed and examined a large number of Japanese who had recovered from radiation sickness. They appeared perfectly normal and were handicapped in no way toward pursuing their way of living. Such is not the case with thousands of our soldiers who participated in "conventional" warfare in World War II. They are handicapped by loss of limbs and eyes. Neither is it true of many of the Japanese who received no radiation injury but received severe burns and traumatic injury as a result of the bombing. It has been estimated that from 5 to 15 per cent of the deaths at Hiroshima and Nagasaki were due to radiation. Why do we concentrate on the 15 per cent and forget the 85 per cent?

The atomic bomb was developed as a blast weapon of war and strategically so used. The radiation effect was never considered to be the prime component of its effectiveness. The destruction attendant to the blast, heat, and secondary fires was paramount. In Japan there was no significant "poisoning" of the ground by fission products or induced activity from neutron capture, and yet many believe that the bomb is primarily a weapon which destroys by mysterious radioactivity.

I have appeared before local defense agencies in many of our cities. They are preparing for defense against an atomic bomb attack—universally they are thinking only of radiation. Invariably they ask, "Where will we get Geiger counters?" Geiger counters are not their only problem—fire-fighing equipment is many times more important, as are well organized rescue squads. "But we have been told that we will not be able to go into a bombed city and rescue the injured." Hiroshima and Nagasaki disprove this. The residual radiation from an air burst bomb is insignificant. The significant prompt radiation occurs in a matter of microseconds and does not extend beyond a 2,000 yard distance. Immediately after such a detonation, such as Hiroshima or Nagasaki, it is perfectly safe to enter into a bombed area and rescue the thousands whose injuries will be such that they will not be able to walk. Unless evacuation of these injured is effected, thousands will be burned to death by secondary fires. Such was the case at Hiroshima and Nagasaki. But how about an underwater or ground burst? In such cases certainly the residual radiation hazards would be increased many fold, but the blast and fire hazards and the prompt radiation hazard would be proportionately decreased, and in my opinion, the total number of casualties would be less.

Much has been written about "poisoned" water. In case the water supply of a city is contaminated by fission products or unfissioned material from an air burst of an atomic bomb, all the evidence on hand at present indicates that after passing through a modern filtration plant the water at the tap would be safe to drink. More work will be done to prove or disprove this statement. We do know from our experience at Bikini that the water from evaporators used on the ship is safe for drinking. Again we must not forget that frequent cases of typhoid fever still occur from drinking polluted water.

If we are to live with this piece of ordnance and ever have to use it again in the defense of our way of living, we must acquire a practical attitude, not

only toward its efficiency or limitations as a bomb, but also toward the possible effects and limitations of this "mysterious" radiation.

We must recognize that the casualties caused by the blast and burns from this weapon will be many times greater than the deaths caused by radiation. We must also dispel the erroneous idea that the rescue work of the injured will be impossible due to residual radiation.

It is of the utmost importance that we recognize that the radiation hazards are *additional* hazards. They only add to the complexity and perhaps even the severity of the other hazards of total warfare. Therefore, we must not and cannot concentrate on this phase of atomic warfare to the detriment of other defensive preparations. Rather, we must know and understand the facts about ionizing radiations if we are to survive the other dangers.

American Board of Preventive Medicine and Public Health Holds First Examination

The American Board of Preventive Medicine and Public Health, Inc., held its first examination for certification on May 14 and 15, 1949, in Washington, D. C. There were 37 candidates, 32 of whom passed successfully. The examination consisted of an all day written examination and of oral examinations given the next day. In the oral examination the candidates were examined individually by an oral board. The written examination was of the objective type and consisted of 400 questions in the following areas of knowledge:

I. *Health Protection and Promotion*
- Geriatrics and Chronic Diseases
- Maternal and Child Health
- Mental Health
- Nutrition
- Oral Health

II. *Environmental Sanitation and Industrial Health*

III. *Communicable Diseases*
- (Including Tuberculosis and Venereal Diseases)

IV. *Public Health Laboratory*

V. *Public Health Practice*
- Administration
- Laws

VI. *Background Knowledge and Techniques*
- Health Education
- History
- Public Health Nursing
- Statistics

The next examination for certification will be given in New York City just prior to the Annual Meeting of the American Public Health Association on October 22 and 23. Applications should be sent as promptly as possible to Dr. Ernest L. Stebbins, Secretary-Treasurer, American Board of Preventive Medicine and Public Health, Inc., 615 N. Wolfe St., Baltimore, Md. For requirements and qualifications, reference should be made to the *American Journal of Public Health*, Vol. 39, page 426 (Mar.), 1949, and page 561 (Apr.), 1949. It should be noted that no persons will be admitted to the Founder's group after July 1, 1950.

Water-borne Diseases*

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THE subject about which I have been asked to speak today is an all-inclusive one, involving directly and remotely a disturbance of function or structure of any organ, tissue, or fluid of the body by water. This is such an enormous task that the time allocated permits only an abbreviated discussion of the subject with emphasis on one phase in which we have been particularly interested.

During the latter part of the 19th century, enteric bacteriology became a reality. Between 1880, the time when Eberth described the etiologic agent of typhoid fever, and the first few years of the 20th century, many of the present-day enteric pathogens were recognized; but it was not until the latter part of the first decade of the 20th century that much was known about the epidemiology and control of these diseases. At this time water played a very important role in their spread.

With improvements in the sanitary handling of food, the use of modern treated water supplies, and the sanitary disposal of body wastes, a marked progressive reduction in the incidence of enteric disease and of carriers has taken place. Public water supplies have been improved and so closely guarded that water-borne outbreaks of enteric disease from this source are becoming a rarity. Of recent years those few outbreaks reported in the United States, in which public water supplies were incriminated,[1] have been traced to accidents or breaks in sanitation such as back siphonage, inadequate chlorination, cross-connections, surface pollution, defective well casings, and ruptured sewage mains contaminating the supply. This speaks well for the marked advances made in sanitary engineering.

Many elderly practising physicians in Iowa have informed me that in the early part of the 20th century they saw many more cases of typhoid fever than obstetrical cases and that treatment of cases of typhoid constituted the greater share of their practices. "In 1900 over 23,000 people in the United States died of typhoid fever[2] and more than 100,000 deaths were due to diarrhea-enteritis and dysenteries. In 1944, the deaths from typhoid fever were less than 600 and deaths from the other enteric diseases dropped to about 15,000." Today, few Iowa physicians see a case of typhoid. During 1947, 3,062 cases of typhoid fever were reported to the U. S. Public Health Service,[3] of which 46 were reported for Iowa. Up to September 1, 1948, 20 cases have been reported in Iowa all due to heretofore unrecognized carriers. Five new carriers were responsible for these cases. In so far as I can find, outbreaks of typhoid in Iowa during the past 20 years have been traced to food handling carriers. In several borderline instances either soft drinks, water, or food may have been the source. "For the past thirteen years not one case of typhoid has been traceable to a public water supply in Michigan,"[4] according to the Michigan Department of Health.

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The importance of a water supply is so well fixed in the minds of the laity that when a case of typhoid is discovered, the tendency still remains for checking the water and milk supply for typhoid organisms before any consideration is given to the human carrier who transmitted the infection to the vehicle. In such instances, testing the water and milk in most instances is rarely warranted, except when epidemiologic evidence indicates.

During World War II, a marked increase in enteric and other diseases spread by water occurred in war-ravaged areas, save for England where safe water was maintained. Many water supplies and sanitary installations were bombed out, and in many instances replacements were impossible. With this breakdown and inadequate substitutions, typhoid fever, salmonellosis, and dysentery increased in alarming proportions. With the increase in cases, there was a proportionate increase in carriers. This increase in cases and carriers, lack of adequate sanitary disposal of body wastes, and food contamination led to marked pollution of wells, springs, and streams, resulting in a vicious cycle. So polluted became the streams that typhoid bacilli could be isolated from them and vaccination of human beings against typhoid was not entirely effective. Bathing in the streams added to the gravity of the situation. The finding of many carriers[5] following mild and asymptomatic typhoid and salmonellosis was not unusual.

When the improvised water supplies were chlorinated but without filtration, amebic dysentery and other intestinal parasitic diseases increased. It has been stated that cysts of *Entamoeba histolytica* resist ordinary chlorination[6] and that their removal can be accomplished by filtration. In some of our observations on embryonated ascaris ova it was noted that the embryos will resist 10 per cent formalin, and 10 p.p.m. chlorine for as long as four years under icebox storage. Apparently the shell membrane becomes impervious to these agents. To what extent other parasitic pathogens will resist chlorination needs further study.

In 1946, 32 outbreaks of water-borne disease were reported to the Public Health Service,[1] involving 4,512 cases with 2 deaths. Only 9 of these were traced to public water supplies while 22 were traced to private supplies and 1 to the use of a tidal basin for wading. In comparison with this, there were 318 outbreaks due to food products with 13,321 cases and 17 deaths reported.

Private water supplies continue to remain a source of minor outbreaks. The above figures reported I feel represent but a small portion of the actual occurrence of disease from private water supplies. Over a period of some thirty years, approximately 70 per cent of the farm wells in Iowa were found basically unsafe and were so proved on analysis of the water in our laboratories. Not only are these supplies contaminated from nearby privies, but they are subject to pollution via defective platforms and casings, from rains, and by fowls and animals permitted to run at large in the yard where the wells are located.

Infections by organisms of the *Salmonella* group are quite frequent among farmers whose water supplies are unsafe. Whether these infections can be traced solely to water, requires further detailed epidemiologic study of the entire farm population as well as of the water. It appears from meager epidemiologic data and cultures of stools in isolated instances that certain proteus and paracolon species found in farm wells in Iowa are pathogenic and are capable of causing diarrhea. Here again, more detailed studies are essential to eliminate animal sources of infection.

Although water supplies have not been definitely incriminated as a source of poliomyelitis, epidemiologic investi-

gations suggest that contaminated streams and improperly operated swimming pools may serve as a focus of infection. Poliomyelitis virus has been isolated from sewage, and it has been shown that the virus will resist ordinary doses of chlorine.

Some of the less common diseases that have been transmitted via water are those caused by chemical poisons such as lead, arsenic, and cadmium; poisoning from water-borne plants and shellfish; a wide variety of parasitic diseases; tularemia; brucellosis, shigella infections, epidemic jaundice, and Weil's disease. The status of minerals such as chlorides and manganese needs further study. The status of cyanogen compounds in water, traceable to algae, likewise needs further study.

A disease commanding a great deal of attention recently is that of fluorosis or mottling of the tooth enamel. It appears fairly well substantiated that dental caries is definitely decreased in areas where the well water supplies contain fluorine in concentrations of 1 p.p.m., and that supplies containing increased amounts above 1.2 p.p.m. show progressive increases in mottling. Control studies now being conducted in cities in which 1 p.p.m. fluorine is being added to the municipal water supply should give more definite information.

Cyanosis or methemoglobinemia in infants due to nitrates in farm well water continues to be a problem in Iowa since its recognition by Comly.[7] The actual incidence of this condition is unknown, due to lack of adequate reporting. Our attention is periodically called to cases in which parents of cyanotic babies or physicians are interested in tests of the well water involved as well as that of neighbors who have deep wells. Johnson and his associates [8] have reported the incidence of nitrate nitrogen in various types of private wells in Iowa. These data clearly indicate that a hazard to infant health exists in our rural areas from this source. Gilbert Kelso, Principal Water Analyst, and his staff in the Iowa State Hygienic Laboratory, have compiled data for 1½ years on 2,313 water supplies from private wells submitted for routine analysis. Of this number, 1,943 were less than 100 ft. deep and 645, or 28 per cent, contained NO_3N (nitrate nitrogen) above 20 p.p.m. Of 370 wells over 100 ft. deep 13, or 3.5 per cent, contained NO_3N above 20 p.p.m.

In another statistical study, involving 3,833 private wells, including 874 wells having above 20 p.p.m. NO_3N, 112, or 13 per cent, did not contain coliform organisms by standard methods of examination. Seven hundred and sixty-two, or 87 per cent, of these water supplies containing above 20 p.p.m. NO_3N also gave positive coliform tests. Therefore, it seems logical to conclude that the standard tests for coliform determination will rule out most of the nitrate-bearing waters as unsafe.

Of 1,475 well supplies containing from 0 to 10 p.p.m., NO_3N, 819 were under 50 ft. in depth, 304 were between 50 and 100 ft., 144 between 100 and 150 ft., 90 between 150 and 200 ft. and 118 above 200 ft.

Of 181 well supplies containing 11-20 p.p.m. NO_3N, 144 were under 50 ft., 32 were between 50 and 100 ft., 4 were between 100 and 150 ft., and 1 between 150 and 200 ft.

Of the 2,313, no wells over 200 ft. showed more than 10 p.p.m. NO_3N. In general, it may be said that the deeper the well the less likelihood there is that the water will contain NO_3N in sufficient quantity to cause cyanosis.

Out of 69 cases of cyanosis in infants traceable to water during this same period, 27 supplies contained 50 p.p.m. NO_3N or less, while 42 supplies contained from 51 to 801-plus p.p.m. Of the water supplies involving these cases, 53 were bacteriologically unsafe whereas 16 contained no coliform bacteria.

You may ask what concentration of NO_3N in water is capable of producing cyanosis in infants? This question I feel can be answered only after more complete statistical, clinical, and epidemiological data have been accumulated. From data submitted with well water specimens to our laboratory, cyanosis was associated with use of water in which at the time of the analysis 20 p.p.m. were found in 4 instances, 15 p.p.m. in 2 instances, 10 p.p.m. in 1, 9 p.p.m. in 1, 5 p.p.m. in 1, 2 p.p.m in 1, 0.4 in 1, and in 2 instances no detectable nitrates. Whether the cyanosis in the latter instances were due to congenital heart disease or other causes I cannot say. However, we are well aware of the fact that marked changes in nitrate levels in water will vary on periodic testing, from causes which we cannot define. It is possible that chemical fertilization of the soil and rains play an important role in the varying nitrate content of rural wells. In one instance, at the time of cyanosis in an infant the well water was found to contain 70 p.p.m. NO_3N whereas two weeks later analysis of another sample showed only 10 p.p.m.

There are apparently many problems which remain unsolved in relation to this disease. One of the mysteries is why cyanosis does not occur in all babies fed on artificial formulae diluted with high nitrate-bearing waters. It has been quite well established that when nitrate compounds in water are converted by bacterial action in the intestinal tract of certain infants to nitrites, the latter are absorbed into the blood, resulting in the oxidation of hemoglobin to methemoglobin, thus leading to cyanosis. A number of controversial theories have been advanced as to why certain infants who ingest these supplies do not contract the disease. These theories I will not discuss here as they are highly controversial.

Another question which might be asked is, whether adults suffer from the presence of the nitrates in water. The answer at this time is not definitely known. Diarrhea has been noted in some adults at the same time their offspring have diarrhea and cyanosis.

In spite of the enviable record made in reducing water-borne diseases, as health educators we fail in many respects to get over to the public the necessity of following accepted sanitary practices, which, if followed to the letter would for all practical purposes eliminate water-borne diseases. To maintain this record we must make certain that persons in charge of operating water plants and those who examine water for purity must be thoroughly trained and fully aware of the responsibilities of their positions. The job has been well done; let us strive to perfect it. We must continue to guard closely our water supplies in order to maintain the excellent record established.

CONCLUSIONS

1. Water-borne outbreaks of disease from public water supplies have been practically eliminated in the United States save for those due to accidents and breaks in sanitation.
2. Data are presented showing the relationship of nitrates in rural water supplies to the depths of the wells.
3. Sixty-nine cases of infant cyanosis associated with NO_3N in rural water supplies are reported.
4. There appears to be close correlation between the NO_3N content of rural water supplies and their coliform content.
5. Accumulated data suggest that in cyanosis emergencies, water from properly constructed drilled wells over 200 ft. in depth may be tentatively substituted in infant formulae until safety tests can be adequately checked.

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Medical Care Section Created in California School of Public Health

A Section in Medical Care Administration has been established by the University of California School of Public Health at Berkeley. The new curriculum complements the school's existing programs in hospital management and public health administration. Qualified graduate students may major in medical and hospital administration courses leading to the M.P.H. degree. Edward S. Rogers, M.D., dean of the school, heads the joint division and E. Richard Weinerman, M.D., is developing the new medical care curriculum. Drs. Sydney S. Norwick, Berkeley, and Dean A. Clark, new administrator of the Massachusetts General Hospital in Boston, are part-time visiting lecturers. A small research staff, headed by Charlotte F. Muller, Ph.D., is making medical economics field studies. The section will serve as a source for consultation in problems of medical care, offering technical aid and other help to interested persons or organizations and as a repository of factual data in medical economics.

Standards of Dental Care for the Different Age Groups*

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IN recent years considerable attention has been given to the need for establishing minimum and optimum standards of health care. These terms imply that some health services are more essential than others and that the status of an individual's health may be determined by the type and amount of health care he receives.

Although common agreement has not been reached as to minimum and optimum levels of health care, the dental and medical professions are attempting to establish criteria which will aid in making the best use of health service facilities.

Probably none of the health professions has experienced so rapid a change in treatment objectives as has the dental profession. In less than a quarter of a century its main interests have changed from mechanical repair to prevention—from a skilled art to a biological science. This evolution is only now beginning to make an impact upon the practice of dentistry and upon the administration of public dental health services. Thus, it is safe to assume that the selection of standards of dental care today can be only a transitory selection and subject to continuous revision as new methods are found to prevent or control oral diseases and defects.

ORAL HEALTH DEFINED

Definitions of physical, mental, and emotional health are difficult, probably because the physiology and functions of the body and mind are not fully understood. Similarly, it is difficult to establish a definition of oral health.

One definition of mouth health, which seems to satisfy current requirements and is in keeping with present-day knowledge, is a modification of a definition of health by Lawrence J. Henderson of Harvard University and was prepared by the graduate students in public health dentistry at the University of Michigan.[1] This statement defines oral health as

> ". . . the objective which the dental profession has in mind in assisting the individual to achieve a satisfactory state of function, comfort, and appearance, provided that his condition has been completely appraised, that he has been informed of existing defects, and that proper treatment has been suggested and made available to him."

Dr. B. B. McCollum[2] has suggested essentially the same definition but in fewer words. He stated that "the normal mouth, as far as the individual dentist is concerned, is what he thinks it should be." In support of this definition Dr. McCollum added that "the concept of the normal is dependent on the intelligence and the education of the man behind the concept."

Optimum oral health, then, cannot be measured precisely until a more scientific method of appraisal is found.

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* Presented at a Joint Session of the Medical Care and the Dental Health Sections of the American Public Health Association, at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

Furthermore, the attainment of optimum oral health is dependent upon the availability and proper use of all the preventive, diagnostic, and treatment aids known to dental science.

ORAL ILL HEALTH DEFINED

It would be safe to say that at the turn of the present century oral ill health was associated mainly with dental caries, pyorrhea, and impaired function as a result of missing teeth. Today, a thorough oral diagnosis would include examinations for impaired masticatory function, caries, and hypoplasia of the teeth, periodontoclasia, mal-occlusion, and other anomalies, cysts, tumors, malignant and precancerous lesions, oral manifestations of systemic disturbances and traumatic injuries.

Complete dental care would involve the use of all effective measures to prevent these conditions, and in case they do occur, to cure or correct them.

When circumstances prevent the full use of these measures the level of dental health is, obviously, lowered. Some health workers have attempted to fix the lowest "acceptable" point on this imaginary scale with the view of establishing a minimum standard of dental care. Such attempts have not been successful because it is difficult, if not impossible, to compromise with the objectives of a health service. A minimum standard of dental care will assure us of only one thing—a low standard of dental health.

DENTAL CARE STANDARDS FOR CHILDREN

In 1945 the American Society of Dentistry for Children formulated minimum standards of dental care for children at the request of the Council on Dental Health of the American Dental Association.[3] It was the considered opinion of a representative group of pedodontists that in order to meet minimum requirements for growth, development, and health, dental services for children should include:

1. Periodic examinations, including x-ray diagnosis
2. Dental prophylaxes
3. Restoration of carious teeth with silver amalgam or silicate fillings, or with metal castings if necessary
4. Pulp treatments, including cappings, partial or total pulpectomies when indicated
5. Anesthesia, when necessary for the control of pain
6. Preventive orthodontic appliances to maintain space and to prevent mal-occlusion
7. Prosthetic appliances, when needed to replace missing teeth and to restore function and satisfy esthetics
8. Treatment of periodontal disease and mouth infections
9. Extraction of hopelessly diseased, impacted or supernumerary teeth
10. Surgical procedures when necessary for the health of the child
11. Patient and parent education to encourage the application of scientific knowledge for the prevention of disease and the promotion of health

Recent studies have shown that the topical application of sodium fluoride should be added to this list. The Society of Dentistry for Children, undoubtedly, would agree to the addition of this caries-preventive measure.

To many people, this list of dental services represents a relatively high standard of dental care, probably because of the prevailing practice of judging standards by the amount of service most children now receive.

Dental services, all too frequently, are limited to prophylaxes, fillings, and extractions, but such substandard dental care tends to give a false sense of security to both the parent and the child. The neglect of other conditions needing treatment almost always results in a more involved condition requiring extensive treatment in later years.

Unfortunately, there is no immediate answer to the problem of supplying even minimal dental services for all children. Therefore, in order to protect the dental health of as many children as possible, the health professions might well con-

sider the proposal of Dr. Norman F. Gerrie to make available, as far as possible, the most essential dental services. Dr. Gerrie, in a paper presented during the 1946 meeting of this Association, listed the following services in their order of importance[4]:

1. Examination and diagnosis
2. Treatment of acute or painful conditions of the mouth
3. Treatment or removal of hopelessly diseased teeth and partial pulpectomy for young permanent teeth with vital exposed pulps
4. Treatment of gingivitis or mouth infections which have passed the acute or painful stage
5. Repair of injured or carious permanent teeth
6. Restoration of carious primary teeth
7. Orthodontic and prosthodontic care
8. Dental prophylaxis
9. Correction of anomalies such as cleft lip and palate

The topical application of sodium fluoride should be added to this list, also.

While most dentists probably will agree that these dental services are as essential as any, many other dentists will point out that the selection of the most essential services is simply a matter of personal opinion and is not, necessarily, based on adequate scientific evidence.

Orthodontic services, for example, may some day prove to be high on the list of essential services. The health professions are finding increasing evidence of the value of orthodontic care to the physical and mental well-being and social adjustment of children and youth. It has been estimated that there are approximately 40 million children under the age of 16 years in the United States, of whom 7 to 8 million need major orthodontic care and of whom less than 4 out of every 100 who need it are actually receiving treatment.[5]

It cannot be said with any degree of finality, when thinking of the cumulative effect on all aspects of life and health, that the neglect of one oral disease or defect is significantly more damaging than the neglect of another.

Thus, it would seem that standards cannot be set without an acceptable yardstick, scientifically conceived. Without benefit of such a yardstick we have no other choice than to rely on majority professional opinion in the adoption of standards of dental care for children.

DENTAL CARE STANDARDS FOR ADULTS

Standards of dental care for adults, like those for children, should be based on the prevention, early detection and treatment of oral diseases and should aid the individual to achieve a satisfactory state of function, comfort, and appearance.

As was stated before, the old concept of dental practice, limited mainly to the repair or extraction of carious teeth and the construction of prosthetic appliances, is no longer acceptable. Dentistry has more to offer than the mechanical repair and replacement of teeth, skilled as those services have become.

Modern standards of dental care for adults involve the prevention and treatment of (1) diseases of the teeth; (2) periodontoclasia, (3) anomalies, (4) cysts, (5) malignant and pre-cancerous lesions, (6) oral manifestations of systemic disturbances, (7) traumatic injuries, and the preservation or restoration of mouth function.

Again, as in the case of dentistry for children, a lowering of these standards must inevitably result in a lower level of oral health.

Indifference on the part of individuals to the need for complete dental care, or lack of dental resources to provide it, often necessitates the restriction of services to those that are the most essential. It would seem logical that the services that promote health and restore function should be sacrificed last in such cases.

Restricted services for adults in the order of their importance are:

1. Examination and diagnosis
2. Treatment of acute or painful conditions of the mouth
3. Elimination of pathosis
4. Correction of irritations that may result in malignant lesions
5. Treatment or removal of hopelessly diseased teeth
6. Treatment of periodontoclasia
7. Repair of injured or carious permanent teeth
8. Dental prophylaxis
9. Replacement of lost teeth and restoration of function
10. Patient education

In recent years recognition has been given to the need for rehabilitating persons for employment. The dental services listed above might well be used as a guide for vocational rehabilitation. The prime purpose in these cases would be to correct those oral conditions, as a temporary expediency, that interfere with the individual's employment.

CONCLUSION

The rapid growth of the body of knowledge that makes up the practice of dentistry is producing evolutionary changes in our concepts of oral health, mouth function, and dental service. Our new knowledge has resulted in a fuller appreciation of oral health and of high quality dental service, which is commendable. Our new knowledge also has resulted in a feeling in some quarters that the dental health problem is beyond solution, which is unfortunate.

Actually, our new knowledge is providing us with clues for future action. These clues strongly suggest that our goals cannot be reached if we continue to follow outmoded and therefore unacceptable standards of dental care. But our goals can be reached by insisting on the highest possible standards based on authentic information, and if circumstances demand curtailment of service, by putting to the fullest use those services we know to be most essential for physical and emotional health, for growth and development and for optimum function.

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The Caries Problem of the School Child*

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EVERY dentist should pause long enough to ask himself the question that many others frequently ask, "What, anyhow, can dentistry contribute to a child's health?"

Were each operator to ponder his answer thoroughly, unemotionally, and scientifically, he should answer: "Dentistry, (1) with family coöperation, can control most children's dental caries; (2) can, with the child's coöperation, prevent or control soft tissue inflammation and disease of the supporting tissues of the teeth—and even can establish a regime of home care and periodic office treatment that will prevent much of the periodontal disease of adult life; (3) can, with specialist coöperation, correct malocclusing teeth, and prevent a relatively small number of the gross tooth irregularities that may interfere with mastication, with the health of the supporting tissues, and with the emotional stability of a young person; (4) can, with specialist coöperation, treat the problems arising from anomalies of the oral cavity—the cleft palate, congenitally missing teeth, supernumerary teeth, hypoplastic teeth, and other developmental dental abnormalities; (5) can treat and restore young teeth involved in accidents; (6) can detect oral cancer in the early stages; (7) can prevent and eliminate oral infection which may contribute to body disease."

When the dentist himself answers the challenging query presented by some professional and many non-professional persons, he convinces himself readily of his extensive contribution to the public's health. With this conviction comes the realization that a complete, modern, scientific oral health program for all would utilize more health personnel and require a greater share of the health dollar than almost any other of those services in the congeries of activities designed to assure the public's health. Economical preventive and control technics are urgently needed for dentistry.

My task, in the limited time available, is to present just one of these health contributions of the dentist—the control of dental caries in school children. To aid school health people to achieve reasonably scientific conclusions and to make reasonably scientific statements about dental caries, it seems pertinent to divide my task into three lesser tasks: (1) state the mechanism of dental caries; (2) delimit clearly those factors which are essential for caries to occur; and then (3) appraise the value of the control measures currently provided by research.

A. THE MECHANISM OF DENTAL CARIES

Thirty-nine of 61 health education pamphlets dealing with dental care, which were appraised by a class of graduate students of public health during the spring semester of 1947–1948, started off with some modification of the apologetic statement, "We don't know

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what causes tooth decay, but . . ." A detailed list of measures invariably followed, which, adopted by the reader, would prevent dental caries—cause unknown. These pamphlets were the results of the health promotion efforts of classroom teachers, principals of schools, health educators, physical education directors, pediatricians, obstetricians, nurses, biochemists, dieticians, nutritionists, dental hygienists, and in one instance, an anthropologist. Obviously none of these writers possessed a thorough background of information about the development, microscopic structure and physiologic processes of vital human teeth, although some acknowledged the assistance of local dentists. In view of the authorship, it seems pertinent to point out that dentists do know the cause of dental caries, although they may not know some of the factors involved in immunity or lack of susceptibiltiy to caries and, likewise, a number of the factors that can be utilized in caries control.

A year ago last September, 114 scientific people, many of them internationally known for their caries research, spent a week in a workshop on the evaluation of caries control technics at the University of Michigan. With the assistance of research, statistical, and librarian consultants, the present status of information about the process and control of caries was appraised most critically. The committee, which was assigned the evaluation of the mechanism of the caries process, reported after a week of study: "Dental caries is a disease of the calcified tissues of the teeth. It is caused by acids resulting from the action of microörganisms on carbohydrates, is characterized by a decalcification of the inorganic portion and is accompanied or followed by a disintegration of the organic substance of the tooth."[1]

Perhaps it should be reëmphasized, then, that dentists do know the cause of dental caries and they know that bacteria, fermentable sugars, and organic acids are involved. Some further conclusions of a second evaluating committee of the Michigan Workshop also should be repeated at this point. Stated briefly, this group's conclusions were: pregnancy and lactation in themselves are not a cause of dental caries[2-12]; sickness, general health or nutritional status, with minor reservations, have little significant bearing on the caries process[1-3, 11, 13-20]; there is no proof or clinical evidence of a relationship of endocrine disturbances and the caries index[21, 22]; and no clinical or experimental evidence is available to support the theory that one's emotional state may influence dental caries.[23]

With a definition of dental caries available as a guide, I should like to turn to my next task.

B. THE FACTORS ESSENTIAL FOR DENTAL CARIES

Somewhat over-simplified perhaps, but nevertheless quite readily understandable, the factors may be outlined which are essential for dental caries. In the first place, the patient must be susceptible to dental caries; very few people are immune. In the second place, the patient must have teeth and the hard tissues of his teeth must be soluble in weak organic acids. In the third place, acidogenic (acid-forming) bacteria, certainly, and apparently aciduric (acid-tolerating) organisms must be present and active in large numbers in the patient's mouth. In the fourth place, the food, the substrate on which aciduric bacteria live, must be made available frequently in the patient's mouth; in other words, the host must ingest fermentable carbohydrate and usually in the form of sugar. In the fifth place, certain specialized "promoters" of chemical activity, the necessary enzymes, must be present in the patient's mouth or must not be inhibited when manufactured by resident

bacteria, because at least 13 chemical reactions[24] are required to degrade a fermentable sugar to lactic acid. Finally, in the sixth place, the organic acids, once produced, must be protected from the neutralizing effect of the patient's saliva in order that they may react with the mineral surface of a tooth. A tough, adherent film, the bacterial plaque, therefore, appears essential to the caries process.

These six essential factors, (1) susceptible patient, (2) acid-soluble tooth structure, (3) aciduric organisms, (4) carbohydrate substrate, (5) bacterial enzyme system, and (6) bacterial plaque, deserve careful consideration. They serve as research guideposts since interference with any one of these factors, or any combination of them, presents possibilities for prevention or for the reduction of the patient's dental caries. Each, then, will be surveyed in the order listed and some of the technics of possible interference considered.

C. THE SCIENTIFIC CONTROL MEASURES

1. *Patient Susceptibility*

Almost everyone has an "Uncle Ned." Uncle Ned is the obscure relative in one's own or some neighbor's family tree; he is the rare individual who did not brush his teeth, did not go to the dentist, did not worry about the type of food he ate, and lived until a ripe old age with every tooth intact save a few loosened by pyorrhea. He is an immune, and immunity to dental caries has been studied.

Over a period of time, by selective breeding, Hunt and his associates[25] at Michigan State College have developed a strain of rats immune to dental caries and also a strain highly susceptible to caries. Klein[26-30] has reported studies of human families in which members for a few generations have experienced little or no caries. Jay, Crowley, and Bunting,[31, 32] Hill,[33, 34] Williams,[35-38] and Canby and Bernier,[39] all have studied the possible mechanism of immunity. It is known that the lactobacillus is absent from the mouths and digestive tracts and that the blood agglutinin titer to lactobacilli is high in these immune persons. On the other hand, preliminary experiments to secure immunity with vaccines have been disappointing and the principle of biological selectivity for the control of human beings would be too impractical to discuss.

2. *Solubility of Tooth Structure*

Much has been written about "feeding teeth" to make them hard and strong so that they will not decay. Such a presumption appears unwarranted.

Certain hypoplasias of the enamel and dentin of teeth have been demonstrated to be inherited anomalies of development,[13] and further studies may show that much of the macroscopic hypoplasia noted in teeth follows a genetic pattern. At any rate, it can be shown clinically that very well calcified teeth develop cavities frequently and that teeth with gross hypoplasia — tooth crowns even deformed—may not develop any cavities at all.[11, 40] In well calcified teeth probably not more than 2 per cent of the enamel is organic material, leaving 98 per cent of the enamel surface that can be dissolved by acids. Whether this surface is 90 or is 98 per cent mineral should make little difference to the chemical action which initiates caries.

On the other hand, if the surface of the enamel can be impregnated with any insoluble material or changed to become more nearly insoluble in the weak organic acids, a possibility exists for interference with the mechanism of dental caries. In the laboratory, applications to enamel surfaces of solutions of stannous fluoride, silver nitrate, some other inorganic salts, and a few native organic compounds, have made the enamel less soluble in acids.[41-47] Much publicity recently has been given the topical application of a 2 per cent sodium

fluoride solution to children's teeth as a measure to reduce the caries attack rate. This application perhaps provides one method to interfere with the solubility of enamel *in vivo* since 4 applications to the dried surfaces of the crowns of young teeth, following an initial prophylaxis, have reduced the caries attack rate in large groups of children by 40 per cent.[48-51] Some children appear to receive greater benefit and some much less. No evidence is available at present that the teeth of adults can gain any benefit from this treatment.[52]

Electron microscope studies provide an indication that the crystalline surface of enamel is changed by the appearance of new crystals of highly insoluble fluorapatite.[53-56] Previous to this research on the topical application of sodium fluoride, it had been noted that the fluorosed teeth formed in children who, for the first 8 years of life, had continuously drunk a community water which contained fluoride in excess of 1 p.p.m., were much less susceptible to caries than were non-fluorosed teeth.[57] In large groups of 10 to 12 year old school children the attack rate would average two-thirds less than in those children reared on fluoride-free waters. However, since the counts of acid-forming lactobacilli found in the salivas of these children also were reduced tremendously,[58] it is difficult to ascertain whether the caries reduction can be ascribed to lessened solubility of the teeth or to a bactericidal effect on the acid-forming organisms.

The artificial addition of 1 p.p.m. of fluoride to municipal water supplies is now being attempted in carefully controlled experiments to see if this addition will produce the same diminution of caries that results in those areas in which children are reared on the natural fluoride-bearing water. Fluorides used in mouth washes and chewing gum, or ingested in tablets, have not been demonstrated to be beneficial to children's teeth.[59-61] Calcium fluoride, the form found in tablets and bone flour, is one of the most insoluble fluorides.

The other compounds that have reduced the solubility of extracted teeth in the laboratory either have not been tested extensively in the mouths of children or have failed to affect the caries process when tested on living teeth in their normal environment. Lead fluoride has proved innocuous[47] and the efficiency of silver nitrate still is to be proved when used under the conditions of routine dental practice.[62]

Recently, considerable publicity also has been given to a technic for the prevention of caries by the impregnation and "plugging" with insoluble salts of the bundles of organic fibers which frequently are trapped in tooth enamel during its formative period.[63, 64] The basis for this technic is the belief that caries begins as a proteolytic process in these so-called vulnerable "organic pathways." Following a prophylaxis, an agent to dissipate surface tension is applied to the surfaces of the dried teeth and the crowns, then moistened successively with solutions of zinc chloride and potassium ferrocyanide. Controlled research, involving a large number of children, is required to evaluate this technic thoroughly. In the meantime, it may be pointed out that these bundles of organic fibers very frequently are completely absent in the area of a cavity in a tooth.

3. Acidogenic Organisms

A number of microörganisms are able to produce sufficient localized acidity to decalcify enamel.[65-71] Among these bacteria are strains of streptococci, yeasts and lactobacilli. So much evidence has been submitted to substantiate the role of acid-forming bacteria in the caries process that school health workers, it would seem, can accept this role without further questioning. The lactobacilli, in fact, can produce such a low pH, can

live in such an acid environment and are present so consistently in the salivas of children experiencing active caries, that the number of them found per ml. of saliva now is used as a caries index.[72, 73] Lactobacilli counts are being furnished to dentists by a number of state laboratories.

Inasmuch as bacteria are among the essential factors for the caries process, their reduction, their elimination or any serious interference with their metabolism or multiplication all provide possible technics of caries control. Lactobacilli have been eliminated from the mouths of children by the drastic removal of readily fermentable carbohydrates from diets.[72, 74, 75] In experimental groups of children and college students, lactobacilli have been reduced in number by the use of penicillin in dental powder twice daily.[76-78] Ammonia nitrogen developed naturally in the bacterial plaques has been reported to inhibit the growth of lactobacilli,[79, 80] and well controlled experiments are now in progress in Illinois to test thoroughly the effectiveness of dibasic ammonium phosphate, used as a mouth rinse or a powder dentifrice, in the reduction of the counts of these aciduric bacteria in children's mouths. Recently the presence of the amino acid, tryptophane, in the salivas of patients has been reported to be associated with a reduction in the caries rate,[81-83] whereas the addition experimentally of indol and one other decomposition product of tryptophane to cultures of lactobacilli has been reported to destroy these bacteria.[84] Two other amino acids, alanine and aspartic acid, will in immunes' salivas, readily become deaminized which is the initial step in the breakdown of an amino acid to ammonia.[85]

4. Carbohydrate Substrate

Government reports, it has been pointed out, indicate that sugar consumption increased from 12.1 lb. per person in 1830 to 108 lb. in 1929.[86] Recently, current sugar consumption has been stated much more graphically,[87] "We now, in a year, manage to consume approximately our own weight in sugar."

Since appreciable amounts of fermentable sugars have not been found in freshly secreted human salivas,[88] it would seem that dental caries could be attacked by working on the national substrate. Such attacks have been made. The older of the two well demonstrated control technics for the control of caries, the elimination of readily fermentable carbohydrates from one's diet for short periods, has been proved successful. Literally, the oral aciduric bacteria have been starved to death in the mouths of 83.4 per cent of a demonstration group of 809 coöperative individuals.[72] This type of control has been instituted successfully for individuals in many parts of this country, but it does not seem that it can become a mass control technic in an economy which is increasing its sugar consumption as rapidly as in the United States.

Since, within 3 to 5 min. after the ingestion of sugar solutions, the acidity of dental plaques in caries-susceptible mouths rises to a point sufficient to decalcify enamel and since it may be maintained for 30 to 90 min.,[89-93] the suggestion has been made that the teeth be brushed and the mouth be thoroughly rinsed with water immediately after every meal or snack which includes sugar. Whether this suggestion can be utilized as a practical method to reduce caries, or not, requires testing.

There remain, of course, many possibilities for interference with the complex system which degrades sucrose to lactic acid.

5. Enzyme System

Inasmuch as a set of 12 or 13 enzymes and coenzymes now are known to be essential to produce lactic acid from

sucrose,[24] it seems obvious that an opportunity should be found eventually to attack the caries process through another of its essential factors. It would seem, in fact, that the most productive approach would come from the incorporation in commercial sugar, after its final refinement, of a stable, colorless, tasteless, non-toxic inhibitor of enzyme activity.

Some promising research with organic peroxides and glyceric aldehyde has recently been reported.[94]

Also in the research stage are a number of other possible enzyme-inhibiting processes or agents. Sodium bisulphite,[95] it has been reported, may combine with the aldehydes of broken down carbohydrates and prevent the formation of lactic acid; carbamide (synthetic urea), it has been reported,[96] may react with the enzyme urease to form ammonium carbonate, which, in turn, interferes with acid production; certain of the amino acids have been reported to reduce the acid production of salivas in laboratory experiments[81-83, 97]; the time required for the hydrolysis of starch by the salivas from mouths without caries has been reported to be greater than for the salivas from mouths with caries[98, 99] and that research finding has lead to speculation concerning another attack route; a synthetic quinone, menadione, incorporated in chewing gum, has been reported in an initial experiment to have lowered the caries attack rate by interference with the production of acid.[100, 101]

Finally, thiamin has been stated to be essential for bacterial growth and carbohydrate metabolism and its absence has been associated with a low caries attack rate.[102, 103] Commenting on its elimination from the diet as a caries control technic, one reviewer says, ". . . it is not likely that any of us would advocate that the disease, dental caries, be exchanged for berberi or its subclinical manifestations."[104]

6. Bacterial Plaque

Since saliva maintains itself in the human mouth at a pH relatively close to the neutral point,[105-107] one legitimately might ask the question, "Why does not the saliva neutralize the organic acids as soon as they are formed and thus prevent decalcification of the teeth?"

The answer probably lies in the ready formation of the dental bacterial plaque. Left undisturbed for a few days on "protected" contours of the teeth, organisms, mucin and mouth debris form an adherent, tough, filamentous covering on the enamel surface. Studied microscopically, the plaque reveals a dense, feltlike mass with long filamentous organisms (leptothrix and others) protruding from the outer surface; while, studied bacteriologically, the plaques associated with beginning cavities provide a high correlation with the presence of aciduric bacteria.[108-113] In some of its characteristics the plaque, as studied in the laboratory, behaves like a selective membrane which permits the diffusion of sugar solutions and interferes with penetration and prompt neutralization by the saliva.[110] Salivas, it is true, vary in amounts and in buffering capacity and these factors may account for some of the differences in caries-susceptibility.

Zephiran in 1:1,000 and urea in 50 per cent solutions, which are powerful bactericidal agents in the laboratory, have been able to penetrate intact plaques only with difficulty.[114] The application of the urea solution in the mouth for 4 min. has been reported to interfere with acid production up to 24 hrs.[115] A urea mouth wash now is being tested on a large group of school children along with a dentifrice of dibasic ammonium phasphate. The commercial mouth washes sold in the past were worthless.

To date, a detergent that will remove the bacterial plaques promptly from

teeth has not been reported. The conclusion of the Michigan Conference[1] also was not very hopeful regarding the efficacy of toothbrushing for this purpose: "There is no evidence that toothbrushing, as ordinarily performed will prevent the formation of plaques." At the same time, it was pointed out, that proper brushing appears helpful in the stimulation of healthier gingival tissues.

SUMMARY

Very briefly, it must be admitted, this paper has stated the contribution that dentistry can make to a school child's health, has presented the mechanism of the caries process, has outlined the six factors essential for caries—a susceptible patient, acid-soluble tooth enamel, acidogenic bacteria, carbohydrate substrate, a specialized enzyme system, and the bacterial plaque, and it has reviewed a number of the control technics which researchers are testing for interference with each of these factors. At the moment, it can be said, there is a convincing body of evidence to indicate the validity as control measures of the topical application of sodium fluoride solution and the restriction of fermentable carbohydrates for short periods in children's diets. There also is excellent presumptive reason to anticipate that both the liberation of 1 p.p.m. of fluoride in communal drinking waters and the daily use of a combination of an ammonia-liberating dentifrice with a carbamide mouth wash will be developed as routine caries control technics for children.

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Adjustment of the School Program for the Physically Handicapped Child*

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Dr. Mackie—We in America have long regarded public education as the rightful heritage of all children. Yet even today we find that there are many educable children who, because of severe limitations, are either not receiving education or are denied access to educational programs suited to their needs.

Estimates suggest that from 4 to 5 million children between the ages of 5 and 19 are so exceptional that special school adjustments are necessary if they are to make optimum progress. Of these, perhaps half, or approximately 2 million children, are physically handicapped.

Dr. Wishik—That term, "physically handicapped," needs defining. From the medical viewpoint, a child is considered handicapped if over an appreciable period he is prevented by a physical condition from full participation in childhood activities of a social, recreational, vocational, or educational nature. For purposes of medical care, handicapped children are ordinarily classified by diagnoses. The school medical administrator, however, recognizes that the school needs a method of grouping which is related to the modifications which are feasible in the school systems. For most situations, four categories usually suffice: first, the children with visual defects, second, those with hearing deficiency, third, those with speech difficulties, and fourth, those with a locomotor difficulty or a general health condition, such as heart disease.

Dr. Mackie—What do you include under the term "general health condition"?

Dr. Wishik—We include among handicapped children those with an internal health disturbance such as diabetes, kidney disease, asthma, or heart disease, when the condition is severe enough to necessitate limitation in the children's activities. Although such children often do not receive the same degree of attention, they are just as effectively handicapped as is the child who carries a crutch.

Dr. Mackie—You would say, then, I assume, that from a medical point of view children with locomotor difficulties may be grouped with those who have certain other health conditions. This point of view is significant in planning for special classes. For example, it seems practical from the standpoint of school administration to place cardiopathic children and children with orthopedic conditions in the same classes where the aim is to provide a protected environment which affords such facili-

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ties as transportation, accessible lavatories, or a shortened schedule.

Dr. Wishik — When, however, special services such as physical therapy are offered to children, there may be reason for separating them from the children who are not receiving such special services. Does this jibe with your philosophy on segregation of handicapped children, Dr. Mackie?

Dr. Mackie — I am very glad you asked that question and that you asked it in just that way. It gives me a chance to say that we do not like the word segregation or the meanings now commonly attached to the term. We regard special classes as a form of special service. It is a positive rather than a negative thing.

When one is inclined to object to a special class, it is well to consider the alternatives. For severely handicapped children, these alternatives usually are exclusion from school, enrollment for home instruction, or attendance in a school not prepared by facilities or personnel to give the child adequate help.

Let us see what some of the special classes provide for handicapped children. Many units for crippled children offer physical therapy and, occasionally, occupational therapy. When such services are provided, the children are under specialized medical supervision, closely coördinated with the school program. The special school or class may also provide other features such as adjusted housing and equipment, nourishment, transportation, rest facilities, special guidance, and parent participation. Examples of special equipment are desks, tables, or chairs designed or adjusted for individual pupils. For cerebral palsied children there may be cut out tables, relaxation chairs, and adjusted instructional materials such as typewriters and large pencils. Such materials and equipment are tools for both the teachers and the therapists.

A program of special education should be a flexible one. It should consist of services scaled to meet varying needs. Our schools are making an increasing effort to enable handicapped children to attend school. When this is not possible, we are trying to take the school to the child wherever he may be—in the hospital, in the convalescent home, in the residential school, and, when no group plan is possible, in the child's own home.

The majority of these children should eventually be assimilated into the regular classes, although many of them will still need adjustments and guidance. Special classes in day schools are somewhat parallel to hospitalization. When a child's best development can be attained in this setting, then he should have it. But he should remain in such a group, just as he would remain in the hospital, only so long as intensive and specialized care is essential to the furtherance of his education and total growth.

For some children, such as the partially seeing and those with certain hearing defects, schools often have divided programs. Under this plan, the child receives from his own special teacher appropriate help by adjustment in instruction and in materials or by speech training or lip reading. At the same time, he spends part of his day in the regular class.

The divided program is likewise in effect for some handicapped children in regular classes. In many places, itinerant teachers going from school to school work with groups and individual children, especially those with speech defects.

Dr. Wishik — The divided program can also be applied to children receiving physical therapy. In this way, the services of the physical therapist can be extended to a larger number of children than would be the case if she treated only those in special classes. Using a divided program makes it possible to

plan for specialized personnel such as physical therapists on an uninterrupted basis while retaining flexibility of transfer of children from one placement to another within the school.

In attaining this flexibility, another difficulty may occur. When a doctor has a sick child under his care, he is interested in protecting the child from the exposures and hazards of a full program of school activities. He is often reluctant to permit liberalizing the child's program. He may, for example, object to the pupil's being transferred from a special to a regular class. Do you find this tendency in the educational field, too?

Dr. Mackie — Yes. School personnel are likewise often reluctant and upon occasion even resistant to this fluid movement from one type of school setting to another. They may, for example, prefer not to admit a child to a class when he has been on home instruction.

School people are sympathetic to the problems of the handicapped, but they are frequently fearful in planning for them because they do not understand the medical implications and sometimes do not know what help the medical people can give them. Each time the school makes a new adjustment for a handicapped child, such as moving him from home instruction to a class, the school increases its responsibility.

Dr. Wishik — This challenges the school health service to give the school staff a better understanding of medical matters. For one thing, the teacher would feel more confident if she had more information on health problems. To be sure, an orientation in health problems benefits all teachers in all classes, but needs even greater emphasis in classes for the handicapped. Here, the teacher has a group of children, each one of whom has a definite physical limitation. In her daily work she must think more definitely in terms of health problems than does a teacher in a regular class. Therefore, the teacher of a special class for the handicapped should have more than the average amount of information about health problems, particularly those related to the special group she is teaching.

The teacher has opportunity throughout the school day to make health observations, even of a rather subtle kind. She can recognize changes in conduct and activity of a child from one day to another. Her observations should be utilized. In addition to giving her special training so that her observations are more meaningful and better understood, it is important that we develop techniques whereby her observations are passed along to the school health service.

Dr. Mackie — Often, the teacher is shy and hesitates to send such information to health people. But if she can get medical interpretation following her referral, she is then in a position to do many things to carry forward the doctor's recommendations. The teacher is likewise stimulated to give greater attention to health problems when she knows that her observations are being given consideration.

Dr. Wishik—Yes, and the school health service should indicate to the teacher in the special class the kinds of observations which she might make and the ways in which she might record and report them. Among the many ways in which teachers and health service can get together and make most effective use of the formers' contributions are through the use of health record forms. Record forms are only a device, it is true, but they do have informative value and they can exert a strong cementing influence on the participants in the program.

In many school health services at the present time, in addition to the health records kept by the health staff, the teacher in each home room keeps a health card for each pupil. On this card

are listed such observations as listlessness, easy fatigue, etc. These items and other specific items should be placed on a special kind of teacher observation card in each type of special class. The special items in a class for visual handicaps would differ from those in a class for instance where children are grouped because of severe cardiac conditions or orthopedic handicaps. For the visually handicapped children, there would naturally be more items about the eyes, such as, rubbing the eyes, squinting, tilting the head, or failure to wear eyeglasses.

In the class for children suffering from general health conditions, more items would relate to poor food intake, disinterest in games, or frequent absences. In the orthopedic class, the teacher and the physical therapist, if there is one, could note whether the student wears his brace or uses his crutch as directed by the physician.

As the teacher develops greater skill in making and recording her observations, she will more readily recognize the indications for referring children to the school health service. In a class containing cardiopathic children the teacher would recognize such danger signals as feverishness or apparent pain. In the class for the hard of hearing she would refer a child at the first sign of a head cold.

In short, I would make a plea for special preparation of the teacher of exceptional children with emphasis upon the types of handicap included in her class.

Dr. Mackie — Standards for the education of handicapped children, as for all children, are set by state departments of education and by local school systems. State-wide programs for exceptional children, including the physically handicapped, are moving forward rapidly. As of January, 1948, 32 states, the District of Columbia, and the Territory of Hawaii each reported one or more staff members in state departments of education carrying responsibility for education of such children. The number of states providing this service more than doubled in the period of 1940–1948. Some states have already established minimum qualifications for teachers of exceptional children.

To meet the needs created by this growing program, many colleges are giving attention to the orientation of all teachers to the problems of exceptional children. Certain colleges and universities are offering comprehensive training in the education of children with locomotor disabilities, the deaf and hard of hearing, the blind and partially seeing, speech correction, and other areas. As the supply of teachers approaches the demand, it will then be possible to require that more special training be superimposed on the usual teacher qualifications. For example, the course for a teacher of the crippled would probably include: (1) general orientation to the handicapped; (2) a survey in orthopedic conditions (with clinical observations) presented by a medical staff; (3) organization and administration of special schools and classes; (4) adjustment in methods and curriculum; (5) psychology; and (6) guidance and adjustment of the physically handicapped.

The fact that we ask the teachers to meet such qualifications does not mean that they will be able to, or should, make medical decisions or recommendations. The physician usually describes the kind of limitation and the kind of placement he believes essential, and then the school tries to put the child in a situation which will fit this as nearly as possible. Teachers understand rather well that no program of special education for the physically handicapped can proceed without continuing recommendations from proper medical authorities. Such recommendations should be carried out.

Dr. Wishik—Yes, but in order for medi-

cal and school people to collaborate in setting up an adjusted program for a given handicapped child, they must be able to talk each other's language. May I refer to a similar problem which arose in industry during the war when procedures were developed for fitting the worker and the job to each other. The physician submitted a report, not as a medical diagnosis, but in terms of the physical capacities of the employee, such as climbing stairs or lifting weights. The factory personnel manager for his part made an analysis of the job in terms of the physical demands which were made upon the worker, rather than merely labeling him as a machine operator or a shipping clerk. A common denominator of physical activities was thus found for describing the worker in both reports.

Similarly, for the school child, it is not enough for the doctor on the one hand to give a diagnosis of "curvature of the spine" or for the school on the other hand to report to the physician that the child is receiving "adaptive physical education." A physician's written recommendation for "limited physical activity" is meaningless unless the forms which are used in passage between school and physician define the term, "limited physical activity." His recommendation will become meaningful if the physician is given opportunity to illustrate what he includes or excludes in his recommendation.

For this purpose, the form should list in specific detail activities which take place in the school and should group them under headings, such as perhaps, "normal activity," "no competitive games," "restricted participation," or "avoidance of academic pressure." Under the headings would be listed such items as, "setting up exercises," "dancing," or "swimming."

The physician can then check a leading group like "no competitive games" as one votes a straight political ticket or he can split his vote and object to any individual activities listed. To permit full democratic process, there should be blank spaces for either the physician or the school to write in additional activities.

It should be made clear that forbidding active participation does not preclude the child's taking a modified role in certain activities. The prohibition of dancing, for instance, helps the teacher to decide on other types of modified participation which she may develop for the student short of complete exclusion.

Of course, the form does not replace personal or telephone communication when these are possible. As a matter of fact the form here described attempts to follow the lines which such communications would most naturally take.

Dr. Mackie—The schools often face another problem. From the physician's report, it is not always possible to know how long the recommendation is supposed to be in effect. A physician may, for example, make recommendation for "home instruction," or he may suggest "a shortened school day." Often, no further word comes from the doctor for a long time, although the physical condition of the child may change materially.

Dr. Wishik—In this connection it is advisable that the medical recommendation and subsequent school placement have limited application in time. In some schools, a recommendation is good for a period of one year. One semester might sometimes be better. Within that maximum, it is hoped that there will be a definitely individualized approach to the needs of each child. If the doctor says that he should see the child within two months, then the school will attempt to get the child back to the physician at that time for a review of status and placement even though it is in the middle of a school semester. A problem which is common among handicapped children is the fact that they are often

subject to repeated illness and hospitalization. What does the school do to attain continuity of educational program for these children?

Dr. Mackie—In some school systems, definite steps are taken to insure continuity of education as the child moves from one school setting to another. Both state and local supervisors of special education are working on this problem. In some communities the physically handicapped child does not as yet have access to all the services he needs—such as school in the hospital or home instruction. This is a problem that remains to be solved in many localities.

Where the necessary variety of services is available, the school records which usually follow the child from school to school help to insure continuity. The trend today is toward a more complete set of records, which will tell something about the social and emotional adjustments as well as academic progress. The academic achievement is given due attention but is not considered the sole objective of a good education program. The most successful special education teachers think of the total development of the child.

Dr. Wishik—In your term "total development," I am sure you include the child's personality. We all recognize that every handicapped child has special psychological problems and emotional difficulties over and beyond those which would otherwise occur in the usual process of the child's development.

Dr. Mackie—I would certainly agree that every handicapped child has occasion for difficulty. Would you think it might be possible for the situation to be so well handled that no significant emotional problem would result?

Dr. Wishik—Well, perhaps that is just a matter of words. We could think of the child who has been well handled as having been helped to adjust to his problem rather than never having had one. The adjustment may have been an easy and a quick one and have left no scar. From the point of view of developing services to meet the needs of handicapped children, I suppose we agree that, by and large, these children are faced with a problem to which we should pay special attention.

Dr. Mackie—At this point I should like to describe one or two trends in special education which are directed toward this very problem. One is the emphasis upon classes for physically handicapped children under age 6. These classes afford a setting for a preventive program which may have far reaching results. This is especially important in the care of the child with cerebral palsy or for a child with a serious hearing loss. A few state laws make it possible for local school districts to receive state aid for the education of certain types of physically handicapped children as young as age 3. These classes for young children, when under the jurisdiction of the public schools, must be staffed by qualified personnel. One of the emphases of the cerebral palsy program in California is in this young group.

New York City's public school for the deaf accepts children as young as 2½ years of age and it gives service to parents of infants suspected of being deaf. One of the features of this school is its program for parents of children in all age groups. Through discussion groups centered in the school, the parents get help from teachers, physicians, nurses, mental hygiene experts, and from each other. Values other than the mere acquisition of facts grow out of parent participation. Fathers and mothers tend to change their attitudes, to lose their fear and feeling of frustration as they come to believe that there is something which they as parents can do to help their children toward good adjustment.

On the other hand, one of the weakest parts of the program for the handicapped, is in the adult and youth group.

Too often we have provided special education for the elementary school child and left the youth or the adolescent to make whatever adjustment he can right at the time when he is thinking of his vocational placement and when social success is so important to him.

Dr. Wishik—And too often we fail to realize the effect upon an adolescent when he has a limp, or a cosmetic defect or when he must wear a brace. The psychological problems of this group are many—but for lack of time I should like to concentrate at this point on the question of vocational planning and guidance for the handicapped child. Not only do we often fail to plan for his future vocation, but even within the school itself there is frequently lack of consistent relation between the child's health condition and his curriculum. I know of one situation in which a child had passed through a school health service, had been seen by a consultant ophthalmologist within that service, and had been labeled as a child with a severe visual handicap. Nevertheless, within that same school the child was placed in vocational activities which required the use of a micrometer. This illustration points dramatically to the need for bringing the health service into the picture when the child is choosing his courses. Even when we recognize the importance of vocational guidance, we usually do so when the child is actually seeking employment at the time of leaving school. It seems necessary for us to go back to the younger age group, perhaps, if we can, even into the elementary grades and at that point try to make an evaluation of vocational possibilities for the child in the light of his known handicap.

Dr. Mackie—We must consider the child's abilities and in the light of them learn to what degree his handicap restricts him from pursuing his normal interests. At the time the child is about ready to enter junior high school a closer working relationship between health services, vocational rehabilitation, and education would contribute to a wiser choice of school and of school subjects and would undoubtedly lead to better vocational adjustment.

Dr. Wishik—I should like to see established in schools where there are handicapped children, and this means all schools, some special vehicle, such as a conference for the specific purpose of vocational planning for handicapped children. Each child who is known to be handicapped should be considered periodically at such a conference. Attending the conferences might be representatives from the health service, preferably including a physician who is a specialist in the field appropriate to the child's handicap, an educator, a vocational rehabilitation agent, other vocational counselors, a medical-social worker, and possibly the parents. The adolescent child should take an active role in the planning.

The conferences could be organized into groups in different ways, for one, on the basis of medical diagnoses, so that a specialist such as an ophthalmologist or orthopedist could give consideration to a number of children at each session.

Dr. Mackie—While it may seem a little time consuming to do this, undoubtedly many hours of professional service would eventually be saved. A conference directed toward vocational adjustment is only one example of the importance of coördination of services all through the program.

We cannot take the child apart and treat him in sections. We cannot treat a muscle or educate a brain and have as an end product a well adjusted individual. It is only through the intermeshing of medical services, education, guidance, and parent effort, together with the direction of the individual himself that a well adjusted person can be expected.

Gathering and Evaluating Accident Data with Respect to Farm People and Farm Workers*

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MOST agricultural establishments are very small, keep no records of accidents, and are not required by law to report accidents to any governmental organization. Complete enumerations are expensive, so sample surveys are ordinarily resorted to. Mail surveys appear impractical because of the unmeasurable selectivity of response; a farm operator who has himself experienced, or one of whose family or hired workers has experienced, a disabling or expensive accident during the reporting period is much more likely to return a questionnaire than is a farmer whose family members and work force have escaped serious injury during the reporting period. Therefore, accident information has been obtained by interviewing the operators of a representative sample of farms throughout the United States.

The sampling methods used were a combination of area and list sampling. Because of the importance of very large farms and ranches in the Mountain and Pacific states as employers of labor and producers of livestock and crops, it was decided to sample large farms at a considerably heavier rate than other farms. A list of farms which were considered to be large on the basis of total areage, acres harvested, number of cattle, number of sheep, or value of products sold was obtained from the Bureau of the Census and used as I shall describe later.

The 3,000-odd counties of the United States were grouped on the basis of type of farming area into 400 strata having approximately equal numbers of farms. An individual stratum did not extend across state lines except in the Mountain states, where state lines were disregarded. In the process of stratification, the larger sub-type of farming areas were divided into contiguous groups of counties, whereas some of the smaller sub-type of farming areas had to be combined to form a stratum. From within each stratum two counties were selected at random. Within the sample counties small segments containing an average of five farms were delineated on highway maps. So far as possible natural boundaries, such as roads or streams, were followed in outlining the segments to make identification easy.

The interviewers used were local people with farm backgrounds. Each interviewer was ordinarily responsible for two counties. He or she was instructed to interview the operators of all farms on the large-farm list within the two counties and those of all farms with headquarters located inside the sample segments. To make sure that no farms were overlooked, the interviewer was required to sketch the outlines of all

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farms or non-farm tracts of land either on an aerial photograph of the segment or a separate sheet of paper. To make sure that personal judgment would play as small a part as possible in the decision as to whether or not a given farm was to be included in the sample (i.e., whether or not its headquarters was located within the segment), a rigid scheme for determining what point should be considered the farm headquarters was prescribed. In case the farm operator lived on his farm, his residence was considered to be the farm headquarters. If he did not live on the farm, but there was a residence on the farm, that residence, or in the case of more than one residence, the most valuable residence, was to be considered the farm headquarters. If there was no residence on the farm, then the only, or most valuable building, was considered to be the headquarters. If there were no buildings, the main entrance to the farm was considered to be the headquarters. In the absence of a main entrance, the northwest corner of the farm, defined as the westernmost point on the northernmost border, was considered to be the headquarters. This scheme covers every possible situation. To make sure that it is followed, a Farm Identification Sheet is used on which each farm or tract of non-farm land located within the segment is listed on a separate line and identified by a number corresponding to the number given that farm or tract on the sketch. The designation of the headquarters, and its location inside or outside the segment, is recorded on the Farm Identification Sheet, together with a notation for each farm with headquarters within the segment showing whether or not a schedule was obtained. If no schedule could be obtained because the operator was not at home, a check-sheet containing enough information to give some idea of the nature and size of the operations was prepared on the basis of conversation with neighbors or other informed persons. This check-sheet information was of some help in expanding the schedule information into absolute estimates.

The face sheet of the schedule was used primarily for recording information to identify the farm. The accident section itself consisted of a battery of 14 questions, only the first 3 of which were to be asked on every farm irrespective of the answers obtained. These 3 questions were designed to identify farms whose residents or workers had been involved in lost-time accidents during the reporting period. An answer of "yes" to any one of these questions meant that question 4 had to be asked, while an answer of "no" to all three questions meant that no accident had occurred, so that no further question needed to be asked. Question 4 is what is called an open question in that it asks for a general answer in the farm operator's own words rather than asking for a categorical answer to a specific question. The interviewer is to record in the blank space below the question a brief account of the cause and type of accident and the extent of the injury. An example might be — "Operator's mother slipped on ice on back steps and broke hip. Steps had no handrail." The respondent in the course of his narrative ordinarily answers a good many of the questions 5 through 14. The interviewer records such answers in the appropriate places without asking the questions again, asking only the questions whose answers have not been volunteered in the course of the narrative. In case more than one person was injured, or the same person was injured more than once, the questions from 4 on are asked about each person injured or each accident.

The biggest deficiency of this battery of questions has been that in a fairly large fraction of the cases the underlying cause of the accident, as fatigue, carelessness, error in judgment, struc-

tural defects, etc., cannot be determined. It may be possible to frame a specific question which will obtain this information in the majority of cases. Another technique which has not yet been tried but which we are now considering would be to write a letter to the operator asking him for additional information about the accident and its causes.

Few previous misconceptions have been shattered by the results of the two surveys for which the analysis has been completed. On the other hand, general impressions have been confirmed or modified by these first objective nationwide surveys of non-fatal as well as fatal accidents. I should like to present a few of the findings from the April, 1948, survey, which covered the first four months in 1948.

During that period, over a quarter million people who were living or working on farms were injured seriously enough to lose at least one day's time from their regular activities. The cost of medical, dental, and hospital care exceeded 11 million dollars, and the total time lost was over 6 million days, including no allowance whatsoever for the time lost by persons who were fatally injured or permanently and totally disabled.

Medical, dental, and hospital expenses averaged just over $40 per person injured, or about $52 per person injured if accidents involving no cost are excluded. The average cost per accident was much higher in the Northeast than elsewhere. The average cost of medical care increased with increasing age. There was no significant difference between the average cost of this care to males and to females. Accident and workmen's compensation insurance played a relatively minor role in defraying medical costs. About 17 per cent of the accidents involving known costs were covered by insurance, and the insurance paid 21 per cent of the costs. Coverage was much higher in the north central region than elsewhere, with 31 per cent of the accidents and 34 per cent of the costs covered. In the South only 7 per cent of the accidents and 11 per cent of the costs were covered.

The average amount of time lost per accident was about 22 days, or just over 3 weeks. Differences betwen regions were slight; only in the West was the average amount of time lost per accident significantly different from the United States average. Almost half of the accidents reported resulted in a week or less lost time, while only about 1 out of 7 involved more than a month.

Twice as many farm people were injured in falls as in any other type of accident. Falls on the ice were more numerous than any other type of fall, but falls on stairs, from vehicles, from structures, and from home furniture led to significant numbers of serious injuries. The next most common type of accident involved animals, with horses and mules responsible for half these accidents, and cattle other than bulls for a third of them. Very few accidents involving bulls were reported. Motor vehicles were involved in 1 accident out of every 9, with passenger cars responsible for 70 per cent and trucks for over 25 per cent of that number. Trailers and motorcycles accounted for the rest. Machine accidents were the fourth most common type, amounting to about 10 per cent of the total. Tractors were by far the most dangerous machines during this 4 month period, accounting for 30 per cent of the machine accidents. Among the hand tools, axes were the most productive of serious injuries, accounting for 4 per cent of all accidents, as many as falls on the ice or accidents involving cattle other than bulls, and a half more than tractors. Injuries resulting from the handling of heavy objects, stepping on or striking against sharp objects, and getting in the way of falling trees and lumber also bulked large in the total, amounting in aggre-

gate to 13 per cent of all accidents. Some 10 per cent of all accidents were so incompletely described that classification into any of the 9 major types was impossible.

Over two-thirds of the accidents occurred on the farm, with one-sixth happening in the house, about one-fifth in other buildings on the farm, and 30 per cent elsewhere on the farm. One-ninth were on the road or street, almost one-fifth were elsewhere off the farm, and the location of about 2 per cent of the accidents could not be determined.

More than 40 per cent of all accidents involved farm operators; about 45 per cent happened to members of their families; 7 per cent happened to hired farm workers; and a somewhat smaller percentage involved other persons. During this 4 month period, about 20 operators out of every 1,000 were involved in a lost-time accident. Comparable accident rates were 12 per 1,000 for hired farm workers and 7 per 1,000 for members of operators' families and others. The accident rate for hired workers is probably understated, as non-work accidents of hired workers not living on the farm were incompletely reported. Over two-thirds of the accidents to farm operators and hired workers happened while they were doing farm work, but only about a third of the accidents to family members were associated with farm work. Almost a third of the accidents that involved members of operators' families were recreational accidents.

About 49 per cent of all accidents were the result of farm work, 18 per cent of the total occurring while the injured was doing chores, and 31 per cent while he or she was engaged in other farm work. Only 5 per cent of the accidents were associated with housework, while 16 per cent happened in the course of recreational activities and 30 per cent while the injured person was engaged in some other or unspecified activity.

More accidents occurred in April than in any of the three earlier months, primarily as a result of greater farm work activity. Accidents occurring while the injured person was doing farm work other than chores increased 50 per cent in number from March to April. Chore accidents increased even more, due probably to greater haste and fatigue on the part of persons working long hours at other farm work and to a shift of chore work from farm operators and hired farm workers to members of the operator's family who are apparently more likely to have accidents because they are less familiar with the operations involved. Accidents associated with other activities were no more numerous in April than in March. As would be expected, the locations in which accidents increased in number from March to April were in the barn or other buildings and elsewhere on the farm, the two locations in which the bulk of the farm work is done. By types, the increase was distributed among accidents involving hand tools, machines, animals, burns or shock, handling objects, falling objects, and stepping on or striking against objects.

A number of additional inferences have been drawn from the data collected in the April survey. Copies of the preliminary report based on the survey may be obtained from the Bureau of Agricultural Economics.

A good many other types of things could be done with accident data which we have not done with the April survey. We have not computed accident rates in terms of accidents per 100,000 people by sex, age group, or status on farm. We have not computed machine accident rates per 100,000 hours of operation of each type of machine, or per 100,000 of each type of livestock. We have made no attempt to compute the accident rate per 100,000 hours in a given activity, as housework, chores, or other farm work. Given adequate supplementary

information, all of these things could be done.

I have mentioned one type of bias in accident information reported to interviewers, that is, the tendency of the more distant accidents and the relatively minor accidents to be overlooked. Another type of bias arises from the fact that when information for an entire enterprise or household is reported by one individual, he tends to report those accidents which impressed themselves on his consciousness because they happened to him or to someone close to him more nearly completely than other accidents which made little impression on his consciousness because they happened to people in whose welfare he had somewhat less interest. In our surveys to date, for instance, it seems probable that accidents to members of other households on the farm have been less adequately reported than have accidents to members of the operator's household. This particular category of bias could be reduced by interviewing a member of each household on the sample farms. The question is, Would the increase in completeness be worth the cost of the additional interviews?

In addition to such reporting biases, there are other qualifications which one must remember when comparing accident rates in different industries or of different sexes or members of a family. For instance, if one day's lost time from the regular activity of the injured person is the minimum criterion for a reportable accident, an injury to a housewife and mother will probably have to be much more serious to be reported than one to a factory worker, because the homemaker feels forced by circumstances to carry on her regular activities despite considerable disability, whereas the factory worker may be encouraged to take time off until the disability ends. Somewhat the same considerations may force the farm operator to stick on the job at reduced efficiency, particularly if he has no hired help and no family members in a position to be helpful. Even within a single industry, differing policies in different individual establishments may result in non-comparable accident statistics, for at one establishment a workman with a given injury may be sent home from work while in another establishment he may merely be shifted to another operation where his injury will not interfere so much.

Without intending in any way to undersell accident statistics, I must admit that all of these qualifications make it imperative that the would-be user of such statistics have a thorough understanding of the definitions, personnel policies, economic and sociological situations, sampling methods (if any), and methods of collection involved. In short, as in any other statistical field, accident statistics cannot be accepted uncritically. The mere fact that a statistic appears to be definite because it is quantitative does not mean that it is a simple representation of fact.

Development of an Educational Program on Sanitation in a Typical Food Industry—The Baking Industry*

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THERE is no need, in speaking before a group of this character, of discussing a detailed historical development of modern concept of sanitation. However, when we come to think of sanitation as it now applies to the food processing industry, we must recognize that with the passage of the Federal Food, Drug and Cosmetic Act of 1938, there began a wide extension of previous concepts. This extension goes into the realm of the esthetic as distinguished from purely public health requirements. By this is meant that modern-day sanitation, as it applies to food producing establishments is also concerned with the prevention of the inclusion of abhorrent materials such as the debris from insect life and rodent life, that is not necessarily connected with disease. For example, in modern-day flour handling practices, it is necessary to provide means for eliminating the common conveyor and elevator infestation with flour beetles and similar organisms so as to prevent their being macerated and the body fragments distributed throughout the cereal products manufactured with the flour.

Maintenance of good bakery sanitation is not only the vital and essential public health operation that it is in other food industries, but it is also a definite public relations operation. There is no question but what the general public would find abhorrent any product manufactured by an industry which admittedly permitted the inclusion of large numbers of insects or their body fragments into their finished products.

When the development of an adequate sanitation educational program in the baking industry was inaugurated in December, 1945, it was with the recognition that not only must the public health features of sanitation as applicable to bakeries be brought to the attention of the industry but also that a better appreciation of this public relations factor should also be brought before them.

Consideration was given as to which agency within the baking industry might undertake this program. Some twenty-five years ago, there was founded the endowed institution known as the American Institute of Baking. This institution was set up primarily for the purpose of conducting purely educational programs and undertaking purely scientific investigations for the betterment of the industry in general. It therefore appeared natural that the Institute should be the medium for disseminating information in this field. Experience gained since, has justified this decision for it has been possible to organize a Sanitation Department at the Institute which could devote full-time to this problem alone.

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ORGANIZATION OF THE BAKING INDUSTRY SANITATION PROGRAM

In thinking of the problem of getting an educational program started in a food industry, some thought must be given to the make-up of the industry—economically and socially. The baking industry is a very interesting one, for it varies from large nation-wide organizations operated like other impersonal corporations to the small neighborhood bakery operated by a single family, much of whose stock in trade is the personal relationships between the customer and the owner-operator family.

Briefly, the baking industry consists of wholesale bakers, multiple retail bakers, and local retail bakers. The wholesale bakers in turn are divided into wholesale bread, wholesale cake, wholesale pie, and wholesale specialty bakers of many kinds. The multiple retail bakers usually manufacture all of these lines, as do many of the wholesalers. The retail bakers usually manufacture all of the lines, but the emphasis at the retail level, including the multiple retailer, is upon cakes and sweet goods rather than upon bread. Due respect must be given to the small baker of bread, but there is no question but what the major quantities of bread consumed in this country are manufactured by large wholesale bakeries. The largest concern in the baking industry has well over a hundred large establishments, some so large that a number of individual units do a gross business of several millions per year.

It was decided first that an educational program should be undertaken to disseminate information already available from the operation of the Federal Food, Drug and Cosmetic Act under the Food and Drug Administration. At this time it was recognized that there are four levels of individuals working within the baking industry which must be reached by this educational program. These are:

1. Management—Ownership
2. Key Technical Men (either General Managers or Production Managers or Sanitation Directors)
3. Individual Production Employees
4. The Janitorial or Sanitorial Staff (those engaged in actual cleaning of the bakery)

The most important of these four segments is undoubtedly the first, or owner-management, for these people within the industry must be convinced of the value and wisdom of a sanitation program in order to obtain adequate funds and an adequate personnel organization within the different concerns to carry out any program at all. Most of the difficulties in the establishment of a sanitation program within the baking industry have resulted from a failure to convince this level of the wisdom of expending the necessary funds. Regardless of how drastic such actions may have seemed, the activities of the Food and Drug Administration in enforcing the federal law have had a salutary result in convincing a large segment of industry management of the value of sanitation. This group will recognize without going into too great detail the long existent controversy or difference of opinion between regulatory officials regarding the advisability

(1) of using educational methods only and (2) of using regulatory action only on the part of a law enforcing agency.

It is our conviction in the industry that there is a positive need for direct firm action on the part of regulatory officials in enforcing sanitary requirements against that segment of industry that is loath to devote adequate funds to the development of better conditions within their plants. Let us grant that government educational programs are needed, but we have seen many instances in which strict regulation is necessary. Just recently, in a large city, several instances were seen where, at the behest of the city health department, bakers had purchased the newest modern

design of machinery, so designed that it could be cleaned readily and, in fact, get soiled only to a minimum degree by production operations. However, these machines were being installed in plants that were literally filthy. No attempt at regulatory action had ever been made, for it was felt that, because these firms were willing to purchase new and modern designed machinery, they were so progressive, that regulatory action against them would be harmful. It is our conviction, viewing from an overall industry betterment angle, however, that such firms are more inclined to purchase new machinery for the economic advantages than for the advantages of better sanitation. We do not advocate repressive measures on the part of regulatory agencies, but we do believe that alertness and prompt court action in the case of unwillingness to be truly sanitary, is an essential feature of government health programs. Such action can never, of course, be taken by bakers' associations or advisory groups. It has to originate from governmental agencies. We sincerely hope that any representative present from such agencies will carry back with him the thought that industry as a whole is not unsympathetic to their activities. The industry wishes to see sanitary codes enforced fairly and honestly, but thoroughly, where needed.

A large number of articles have been written by the American Institute of Baking on the fundamentals of sanitation and published in trade journals getting primarily into the hands of bakery management. Wherever possible, we have had speakers before bakery management conventions. Sad to say, we feel we have not been too successful. One of the best illustrations of this is the remark made by a prominent bakery executive when told that a representative of our Institute would speak on bakery sanitation at a forthcoming convention: "If those fellows don't stop coming down South here from Chicago to talk to us about that damn subject, we all might as well give up our business. Pretty soon, our consumers will learn all about it and then they won't buy any of our product." We are trying our best to combat this ostrich-like feeling, for we are convinced that the public relations value of a thoroughly sanitary industry are much more on the positive side than the negative.

SANITATION SCHOOLS OR COURSES

Second, after our first efforts had been under way some ten months, we found that there was a widespread need in the baking industry particularly, for the spread of detailed information regarding plant sanitation methods. Our answer to this need has been the establishment of special schools or short courses. Owing to the diverse make-up of the baking industry, it has not been possible to bring large numbers of people from different sections of the country into Chicago. Attendance at a school, even of a few days' duration, means that the men attending must be away from their shop production, and the more time that can be saved for them the better. We therefore have established a system of giving regional schools or short courses throughout the country. To date, twelve have been given or planned through 1948. The last was given in Boston in September. These courses undertake not to give the final word, but to give the details of the problem with as many of the answers as can be given in the few days available, so that personnel attending the course will be able to take back to their plants at least a proper appreciation or evaluation of the different factors of what they are up against, and have some guide as to further study of more details.

Subjects covered in the order of their importance are:

1. Those subjects relating to the management of production operations, and building and plant maintenance, which will eliminate the

causes of rodent and insect infestation and bacterial contamination of the finished products.

2. Then, with a recognition that no matter how careful we may be, there will always be a casual rodent or insect invasion of even the best of plants, measures are discussed which will enable the baker to set up permanent safeguards against such casual invasion, together with the methods needed for ridding the bakery of any infestation that might develop regardless of measures adopted to prevent it.
3. The subjects include also such special features as what we term "preventive fumigation," "organization of janitorial service," "training in personal hygiene practices among bakery employees," "the biology and life history of rodents and insects," "fundamental bacteriology," and the like; but emphasis is laid upon practical application.

It has been our experience that in bringing together trade groups for short courses, the greatest possible emphasis must be placed upon visual education methods. We have, therefore, gone to great lengths and expense to prepare working models of bakery equipment. Wherever this has not been possible, we attempt to show graphically on charts just what is involved. The old pedagogical method of the professor standing in front of the audience and more or less reading to his students is definitely taboo in any bakers' school.

Obviously, our presentation has improved from course to course. We started out at first by bringing in representatives from all sorts of industries and public health organizations to discuss how they cope with the problem. However, we have now found that it is more effective if the subject matter is kept down to the details of interest to a baker, with as many practical applications as possible. Therefore, for the future we are planning our courses with a "faculty" of five only, all but one being on the Institute's permanent staff.

The type of individuals that have been attending these courses includes the production manager, the sanitarian, or chief of maintenance of the baking plants. These men carry the message back to their owners and general managers, but we find that sometimes they are faced with the problem of not being permitted to go ahead with what they have learned because top management has not been convinced of the economic advantages. Again, as was said, before, we are convinced that our primary problem is to convince top management of the need of spending money for better plant sanitation.

The third level for an industry educational program involves the individual employees engaged in production. This level in our opinion is the second most difficult one to reach. However, it is a very important one. A concrete example of why this is so was observed recently. The vertical mixing machines used by many cake bakeries have three speeds. In using these, it is possible for the operator to press a button and turn on the machine at the maximum speed of 120 r.p.m. at the start of operations, or in turn, he can start the machine by pressing one of three buttons which sets it in motion at 60 r.p.m., then pressing a second raising it to 90, and a third finally to 120, as the mixture being worked upon begins to become more homogeneous in character. In a great many bakeries, an observer watching this process in action will notice that when the operator turns on the high speed immediately, there is considerable loss by splashing, which not only loses dough, but renders the immediate vicinity of the machine very dirty. Proper training of employees in their sanitation responsibilities would take cognizance of this type of procedure and teach them the reasons for proceeding gently, not only from the production standpoint, but also from the sanitation standpoint. In other words, effort must be made to train industry employees in a food establishment in the proper operation of their machines for each individual job, so that they will contribute

at a minimum to the general insanitary picture.

It is difficult to set up a procedure for meeting this type of need. Our own program at the present time is devoted solely to the issuance of posters, in which each particular job is analyzed and the sanitation features of proper procedure are brought to the attention of the employee. In addition, it is planned to encourage the holding of individual plant or company schools for the purpose of discussing these factors and setting up better appreciation of individual jobs on the part of that concern's own employees. However, this is essentially meeting the problem at the company level rather than the industry level.

Before passing on, however, it might be well again to consider further the subject of sanitation posters. It is our conviction as a result of our experience that posters are best devised when they will appeal to the individual employee on an emotional basis, in that it will tie in with a recognition of his job as an important one. To meet this requirement, we have devised posters which always carry a picture of a baker doing something. The figure on the poster is garbed in traditional baker's costume. We have found, that our little "Joe Doakes the Baker" figure carries an emotional value comparable to the well known comic strip figures. To add to this appeal, each poster is given a descriptive title, such as "Give Bugs the Brush-Off," "Store Flour Safely," "Make a Clean Sweep," "Keep 'Em Dying," "Signs of Danger." The attempt is made to keep these on a commonplace conversational basis so that they will attract attention, so that when seen across the room, the employee will be inclined to read the poster. We also try to key up the individual posters with characteristic seasonal operations, such as the statement "It's Weevil Time," or "Rout the Rodents," so that when they see a new poster, they may be inclined to inquire, "Well, what does that have to do with the other ones?" Color schemes are very valuable and, last but not least, an attempt is made to tie in the concept of sanitation as meaning better business and the implication of a better remuneration and consequent security to the individual as a result of paying attention to these sanitation suggestions. Our posters have emphasized the points of inspection of ingredients and applicable methods for residual and contact sprays in insect control. We have also issued posters that outline the salient points in trapping for rodents, in looking for the signs of rodents, the things to look for when mice leave evidences of their presence, and the typical rodent harborages that employees know about, so that they will eliminate them whenever possible on their individual responsibility.

The fourth level of education involves the training of the porter, janitor, or sanitary staff of the individual plants in details of their work and efficiency of operation. These men must be taught how to do their job properly as a result of proper experimental effort. There have been so many advances in the fields of detergency, and personnel efficiency, that these can be outlined with distinct advantage, to the cleanup staffs of any food plant establishment. The work of getting this information across must undoubtedly be undertaken through the medium of company or plant training courses. As yet, in our program, we have not had an opportunity to develop this type of plant training course, but we are contemplating doing so shortly. There is a wealth of material available upon which such courses can be based. In fact, there is no doubt but that many present in this group are familiar with it. The point to be made at this juncture, however, is that the baking industry itself does not know it. It is up to industry sanitation advisers to bring such material to the attention of indus-

try. This is a primary function of an educational program in this field.

COÖPERATION AMONG FOOD INDUSTRIES IN CARRYING OUT SANITATION EDUCATION

Early in our program, it was recognized that other industries had also had a wealth of experience in the field of industry-wide sanitation education. With simultaneous recognition on the part of many of these industries, there was formed a group now known as the National Committee of Food Sanitarians, with headquarters in Chicago, consisting in membership of industry sanitation advisers only. This group now numbers approximately thirty industries, with one or more men from each industry, as active members of the committee. Information and organization of sanitation programs are pooled among the members so that, for the betterment of all in disseminating correlated advice, there will be a sound food industry advance in sanitation rather than a sporadic advance in leaps and bounds by individual industries. By this is not meant that there is any force applied as to how any one industry should conduct its own program. All information pooled is purely voluntary. Such a pooling of the education program is vital, for it has been found that the voice of many, speaks with much more authority than the voice of a few. For example, recently, conclusive evidence was developed that the practical use of the rodenticide "1080" in food plant establishments was developing in the wrong direction. In our own baking industry, "1080" was found to be distributed almost indiscriminately in bakeries with cups of this violent poison in solution form placed directly upon flour sacks, on overhead beams where it could fall into the finished products, and with a multitude of other misuses. As a result of concerted effort, it has been possible to interest government authorities in the inauguration of a fundamental research program for the development of newer and safer rodenticides than "1080." Previous interests on the part of the government have only been to examine carefully all poisons proposed. Each company engaged in the manufacture of chemicals that might develop into rodenticides was constantly proposing newer and better rodenticides, primarily from the interest of finding new uses for chemicals already manufactured by them. The feeling of this group of nation-wide food industry sanitarians has been that there is real need for government to undertake to do fundamental research to locate and find safe, as well as adequate, rodenticides which could take the place of "1080."

IN-PLANT TRAINING OR EXTENSION SERVICE IN SANITATION EDUCATION IN THE BAKING INDUSTRY

In recent months, it was found that there is a widespread need for detailed training in methods of inspection as well as in remedial methods in the baking plants, with regard to sanitation problems.

For this reason, the American Institute of Baking, as part of its education program, has now set up a bakery inspection training service. Experienced government inspectors have been engaged on a full-time basis as permanent employees of the Institute, totalling at the present time, between 40 and 50 years of government enforcement experience, ranging from that of ordinary inspectors to that of an administrative official. Thorough inspections are made of any plant applying for this service on a cost basis, the plant being charged a per diem rate, figured to cover all overhead, and the cost of subsistence and travel. The initial inspection of from 2 to 5 days covers the plant with a thoroughness of detail never previously experienced even when covered by the same inspectors engaged in government service. An analysis is made of what-

ever sanitation program the plant has previously installed; the plant is rated numerically as to its relative sanitation level and a program recommended for bringing the plant up to whatever higher level management desires, this level being in all cases equal to or higher than that of mere compliance with the Food, Drug and Cosmetic Act requirements of freedom from filth-contaminating influences.

Following this initial inspection, a series of three or four inspections are made throughout the year in order to evaluate the extent of progress in raising the plant's level of sanitation.

The response of the baking industry to the offer of this service has been most appreciative. For the first three months of its existence, only one inspector was employed, but before the end of this period, it was evident that it was necessary to have at least two more, and it is anticipated that in years to come, we will possibly double or treble the amount of service we are now offering.

SUMMARY

In closing, it might be well to summarize briefly our concept of what we have found to be an adequate industry program.

First, it must reach each of the four basic levels of the various diverse types of firms of the industry. The two most important of these being:

1. Management, who must be convinced of the necessity of providing funds.
2. The individual employees of the industry who must be trained in the performance of their production functions with a minimum of development of insanitary conditions.

Second, experience has shown that the pooling of experience and general information with other poor industries has proved a tremendous asset.

Finally, it is necessary also to establish a direct industry contact for the purpose of developing fundamental knowledge of the problems of sanitation incident to one's own individual industry.

Rhode Island Cash Sickness Compensation Program*

THOMAS H. BRIDE

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IN other countries, even in the early days of social legislation, temporary disability insurance programs preceded other types of social insurance. This has not been so in the United States but there is little doubt but what it would have been so had it not been for the extensiveness of unemployment which provided the impetus for the passage of the Social Security Act in 1935. Even at that, it is difficult to understand why this Act did not make any provision for the protection of workers who become unemployed through sickness or disability, as it did for those who become unemployed due to economic factors.

In 1942, Rhode Island undertook the passage of the first piece of legislation in the United States to provide a form of disability insurance, protecting those workers whose unemployment was caused by sickness. This legislation is known as the Rhode Island Cash Sickness Compensation Act.

As you well know, we have had in Rhode Island and in other states, disability insurance in the form of Workmen's Compensation programs which among other things protected workers against unemployment due to accident or occupational diseases. In addition, in Rhode Island and in other states, since 1936, we have had unemployment insurance programs which protected workers in part against unemployment wage losses due to economic factors. Between these two, there remained a gap which has been closed in part by the Rhode Island Cash Sickness program, providing further protection to groups of workers not included in either or both of the other programs, but who too suffer wage losses through unemployment caused by illnesses other than occupational diseases or accident.

The Cash Sickness program was set up so that there would be no exclusion because of age or because of the type of disability. Every worker employed by a firm which is subject to the Rhode Island Unemployment Compensation Act is automatically covered by the Cash Sickness Act, unless, and this is the only exception, he prefers to be exempted because of a religious affiliation which depends for healing upon prayer or other spiritual means. It might be interesting to note that up to the present time we have affidavits from some 39 persons who have claimed this type of exemption.

There were many factors other than the consciousness of the need and the logic of the situation which had a very direct influence on the adoption of this Cash Sickness program in Rhode Island. Among these are included the existence of the Unemployment Compensation program and the very substantial size of the Unemployment Compensation Trust Fund at the time; the requirement in the Rhode Island Act of an employee tax in addition to an employer tax; and the concerted efforts

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on the part of interested groups to effect a merit rating or employer tax reduction on the one hand, and the liberalization of the benefit structure or an employee tax reduction on the other hand.

From this, evolved the decision to establish this Cash Sickness program and to finance it by diverting 1 per cent of the employee tax from Unemployment Compensation to a Cash Sickness Fund which would be used for the payment of benefits under the Cash Sickness program. At no time has there ever been any employer tax used to finance the Cash Sickness program, and as a matter of fact, there has never been any real effort to have such a tax included.

It is not too difficult, therefore, to appreciate why the Cash Sickness Act provided that this program would be administered by the same agency which was administering the Unemployment Compensation program, namely, the Unemployment Compensation Board. In addition to this matter of being administered by the one agency, there is much more which these two programs have in common. There are very certain and definite advantages which result from the extent to which these programs are coördinated. At the same time, it should be recognized that they are not exactly identical and in a few respects at least they require a different approach. In our efforts to realize the advantages which come from close coördination, we have learned in Rhode Island that proper measures must be taken to insure avoiding the disadvantages from a failure to recognize the distinctions which exist in the two programs.

In order to be eligible for Cash Sickness benefits, any claimant must meet certain minimum requirements. In the first instance, of course, he must file his claim and all such claims during the entire claim process are handled by mail. On this claim form is indicated certain information relative to his unemployment, the onset of his illness, and whether or not he is receiving or has filed for Workmen's Compensation. This claim form must be certified by the claimant's attending physician who is required to supply information relative to his diagnosis and the extent to which the illness or disability prevents the claimant from performing his usual or customary work. While physicians are not held to an exact time limit on the duration of the claimant's illness, it is necessary that there be indicated in the first instance the probable number of weeks that the patient might be incapacitated. This, of course, is reviewed by a medical director to insure that there is indicated a reasonable duration of the illness.

Just as is the case with the Unemployment Compensation program, there are certain eligibility requirements in the Cash Sickness program. In the first place, the worker must have earned at least $100 in covered employment during his base period which, in Rhode Island, is the calendar year preceding the benefit year, beginning in April. These earnings of $100 will entitle him to the minimum weekly benefit rate which has been established, namely $6.75. If his earnings during the base period equal or exceed $1,800, he would then be entitled to the maximum weekly benefit amount allowed, namely, $18. Whether he is entitled to some weekly rate between $6.75 and $18 depends entirely on his earnings during the base period mentioned. The number of weeks he will be allowed to draw benefits cannot exceed 20 weeks, and again depends on the amount of credits he has compiled in his base period, divided by his weekly benefit rate.

With employment conditions as they are today, and the increase which has taken place in the average weekly wage since the establishment of these benefit rates, it is not difficult to appreciate that the great majority of claimants are entitled to the maximum weekly benefit.

The average duration of benefit has been approximately 9 weeks.

At the end of the probable duration of benefits which was originally certified, the claimant is disqualified unless there is additional information which indicates that he is still, because of illness, unable to perform his regular or customary work. This information is obtained either from the attending physician or from a physical examination performed by a physician designated by the agency, or as the result of a field visiting program, or perhaps in some selected cases from all three sources. If, on the basis of this information, it is determined that the claim shall be no longer allowed, and the claimant feels aggrieved thereby, he is given every opportunity to pursue an appeal, first to a referee, then to the Unemployment Compensation Board, and from there, in some cases, to a Board of Review. In the last analysis, a further appeal can be prosecuted from there to the courts.

You will observe from the time of the original certification, during the entire process of appeal, and up to the final determination, the certification and the assistance and advice of physicians are factors without which the system could not function.

We might look for a moment into the actual operations of the Cash Sickness program to see the extent to which workers are calling upon the program for help. In the beginning, it should be appreciated that because of its industrial characteristics, Rhode Island would not have been selected as the most desirable testing ground. Besides being densely populated and very highly industrialized, it has a great diversification of industry, with textiles, machinery and tools, and jewelry as its three major industries. There has always been in employment a much larger number of women than in most other states. Women have averaged 40 per cent of the working force and have approached 50 per cent particularly during the war years.

Herein, as is normally expected, lies to a considerable extent the poorer or non-selective risks.

What is equally apparent is that the period 1942–1945 would not have been selected as the most appropriate time to conduct such a test or actually undertake such a program as we did. The demands of the war program brought into industry older workers and women in great numbers. Such movements in and out of the labor market of persons having no genuine attachment to the labor market resulted in abnormal payments consistent with the abnormal conditions.

During this same period, our annual disbursements in the form of payments so greatly exceeded our income that the Fund itself was seriously threatened. At one time, in 1946, but only for a year, it became necessary to increase the employee tax to 1½ per cent, to help offset this heavy drain on the Fund. The critics of the program were quick in their attempts to attribute this financial predicament to the excessive malingering which allegedly was rampant. While admitting that this program, not unlike any other private or public insurance program, has had and will continue to have its worries in combating malingerers and fraudulent claims, I must say that this was by no means a significant cause of our financial ills. Rather, the load stemmed primarily from the authorized payment of benefits to three groups not originally encompassed.

You will recall that the Cash Sickness law originally provided for payments only to those persons suffering a wage loss through illness. However, during the period of financial difficulty, this original concept was extended to permit payment to workers who continued to receive wages or salary during periods of illness and to workers who received Workmen's Compensation. These two

changes, coupled with the more significant authorization to pay benefits in pregnancy cases, resulted in expanding the program considerably beyond its original scope and beyond the original estimated rate of expenditure. This made necessary a corresponding adjustment of the tax base.

But let us get back to the types of claims filed. In general, it can be said that the claim load (exclusive of those groups just mentioned) continuously displays characteristics not unexpected and quite consistent with the general morbidity and industrial pattern throughout the state. Whether it be age, sex, industry, or medical diagnosis, sample studies show the expected relationships.

Of course, again you must bear in mind that payment in pregnancy cases tends to distort greatly what would be normal findings. For example, in the distribution according to age there was the highest concentration of claims in the 20–29 age group. Thirty-one per cent of all claims were found in this group. Yet, if our system excluded payments in pregnancy cases, the size of this group would revert to normal since approximately one-half of all claims in this age bracket were for pregnancy.

A recent sample study produced additional interesting data. The ratio of claims of industrial workers to the total claim load bore a close relationship to the ratio of industrial workers to the total working force. This same characteristic kept reappearing in other groupings, such as age, sex, marital status, and industry or business.

It was further revealed that 65 per cent of all claims analyzed fell into four major categories of illness: 22 per cent were for pregnancy; 18 per cent for injuries or the ill effects of poisoning; 14 per cent for diseases of the digestive system; and 11 per cent for diseases of the circulatory system. The remaining 35 per cent were distributed among eleven other types of illnesses, with 7 per cent shown as suffering from diseases of the nervous system and sense organs, including mental disorders.

Again, of the claims analyzed, 57 per cent were filed by females. Of that 57 per cent, four-fifths were married. The average age of all claimants was 39 years, with the 45 year average for males 10 years higher than that for females. Only 20 per cent of the male claimants in the group were under 30, while nearly one-half or 49 per cent of the females fell into that age group, again due to pregnancy cases.

The number of cases analyzed was necessarily small, yet it has been sufficient to provide some interesting data, and it is felt that larger cross-section studies will not do great damage to the ratios and characteristics mentioned above. In any event, this analysis might serve to focus your minds on the extent to which the morbidity data accumulated offer a challenge of enormous importance to public health activities, especially to those concerned with prevention, rehabilitation, and the general subject of geriatrics.

We might further ask ourselves what happens to the person in the older age group who is disabled and who has exhausted his disability insurance benefits? Or, if you will, what of that same person who may not be covered by the program? What of the high percentage of claims during pregnancy? And what of the pregnant wives of men who contribute to this system of disability insurance but who themselves (the wives) are not covered by the program? To what extent is our program improving or can it improve the health of workers? To what extent are its benefits being used as financial relief to low income families from the added burden of medical expenses. These are certainly matters for conjecture and study, since this whole program of social insurance, particularly disability insurance, is one of local and national importance.

In studying this program, we should not lightly skip over other significant factors. Should temporary disability insurance of this type be coupled with a maternity benefit program? Should it be extended to cover a program of medical care? Is it logical to extend payments to persons who suffer no wage loss or who may be receiving other compensation such as Workmen's Compensation?

Let us not forget either the vital part played by the medical profession in the administration of this program. Its very backbone is medical certification, advice, and counsel. It is a real challenge to the individual practitioner, as a professional man maintaining his role of assistance to the individual, while at the same time assuming his responsibility to society. On the determination of whether he can or will fulfil this dual role rests the future of such a program.

While the Cash Sickness program in Rhode Island is out of the early experimental stage, having been in operation for 6 years, it is hoped that it will never be out of the research stage. There is a constant effort to improve the plan and to improve the system and administrative structure through which it is carried out. Since its original passage, many changes have been made and no doubt more are contemplated.

In any event, Rhode Island has provided experience for other states adopting this type of social legislation or considering its adoption in the near future. California and New Jersey already have systems in operation. Ohio, Washington, New York, Illinois, and others are investigating its possibilities. From the fact that so many representatives of these states have come to Rhode Island to observe the organization and administration of disability insurance, there is evidence that our experience with the plan is considered worthy of study. As always in a pioneer endeavor, errors have been made. And again, as always in a pioneer endeavor, we regret that some other state was not first to provide Rhode Island with its experience so that we might have profited by its trials and errors. However, Rhode Island workers have been given a measure of protection during illness at a time when it is most needed, and social legislation thereby is moving another step forward.

1949 Ricketts Award

Dr. Ludwig Hektoen, Professor Emeritus of Pathology, and Dr. Russell M. Wilder, formerly Chairman of the Department of Medicine, University of Chicago, received the 1949 Howard Taylor Ricketts Award. The awards and medals were presented on May 23, 1949, at exercises held at the University of Chicago Clinics. At this time Dr. Wilder who is now head of the Department of Medicine, Mayo Foundation, delivered an address entitled "The Rickettsial Diseases: Discovery and Conquest."

Dr. Ricketts in whose honor the award is made, first established the presence of specific organisms as the causative agents of the group of diseases now known as the rickettsial diseases—Rocky Mountain spotted fever, rickettsial pox, and others.

Tuberculosis in a School for Mental Defectives*

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THIS paper is a report of the results of a tuberculosis control program in the Newark State School for mental defectives, during the twelve years from 1936 to 1948.

This school, located at Newark, N. Y., is one of the 27 institutions of the New York State Department of Mental Hygiene. It has a population of about 2,700 patients, all mentally defective, about 40 per cent classified as morons, 45 per cent as imbeciles, and 15 per cent as idiots. Most of the patients remain in the school for prolonged periods of time and have limited contact with the outside, though some have occasional short vacations at home. Because the patients live in such close contact with each other, it is assumed that one open case of tuberculosis can spread the infection to most of the inmates living in the same ward. Whatever contact exists among patients in different wards is comparatively casual and is due to work in the kitchen, laundry, or elsewhere. It is obvious that coöperation of many of the patients in observance of even the simplest sanitary measures is at best limited.

The buildings of the institution are divided into two main groups, with 13 wards in each—one group for about 1,400 female patients and the other for approximately 1,300 male patients.

METHOD OF STUDY

The method of the study has been as follows:

1. All patients in residence in February, 1936, were tuberculin tested and the reactors x-rayed. Three doses each of O.T. and PPD were used.

2. In April, 1937, all previously negative reactors and new admissions since February, 1936, were tested with an intermediate dose of 0.00025 mg. PPD and all patients who reacted then or had reacted in February, 1936, were x-rayed. After April, 1937, all admissions and previously negative reactors were tested every 6 months and those giving a positive reaction for the first time were x-rayed. Because the use of two PPD tests was considered impractical, and in order to avoid an excessive number of strong reactions with a single second strength dose, the "intermediate" dose of 0.00025 mg. was used throughout the study after February, 1936, both for the initial tests and the retests.

3. Subsequent to April, 1937, all reactors were x-rayed each year, the males in April, and the females in October.

4. Beginning in October, 1938, all new patients were routinely x-rayed on admission. All employees were x-rayed at that time, and routine preëmployment x-ray examination was begun.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

The residence of each inmate, by wards, has been recorded, including any transfers, however brief, from one ward to another, so that the history of exposure to infectious tuberculosis within the wards is known and the patients have been classified accordingly. A patient was considered as having been exposed to infectious tuberculosis if he was in residence for a minimum of one month in a ward in which a clinically significant case of tuberculosis was present. Subsequent to such exposure, the patient was included in the exposed group for the remainder of the study.

Since laboratory data, such as the results of examination of sputum, laryngeal smear, and gastric contents, were unavailable in the vast majority of cases, the diagnosis of tuberculosis was made almost exclusively from x-ray examination on 14" x 17" celluloid films. On the basis of roentgenological characteristics, cases were classified as clinically significant or apparently cured. Due to these limitations, revisions of initial diagnoses have been made in some instances, on the basis of subsequent x-ray evidence. For example, during the course of the study some cases which had been originally classified as having apparently cured tuberculosis were later found to have active disease, while others which had been considered active were reclassified as apparently cured. Some who had been considered as having tuberculosis, were later classified as cases of non-tuberculous pulmonary disease. The difficulties in establishing a definite diagnosis from one or two x-rays alone can be readily appreciated. However, it is felt that after twelve years' experience during which there has been opportunity not only to examine the patients periodically by x-ray, but also to observe them clinically and, in some cases, to have post-mortem confirmation of the diagnoses, the present figures can be considered as reasonably accurate.

The original plan was to isolate all cases of clinically significant tuberculosis as soon as they were detected. During the first few years of the study, however, facilities for isolation of infectious cases were very inadequate, so that segregation of these patients was far from complete. Although there was considerable improvement in this respect beginning in October, 1938, even after that time segregation was not complete, first, because almost invariably there was at least one unisolated case which had developed or reactivated during the interval between examinations, and second, because a considerable lapse of time often occurred between the diagnosis of tuberculosis and the patient's removal to the tuberculosis ward.

RESULTS

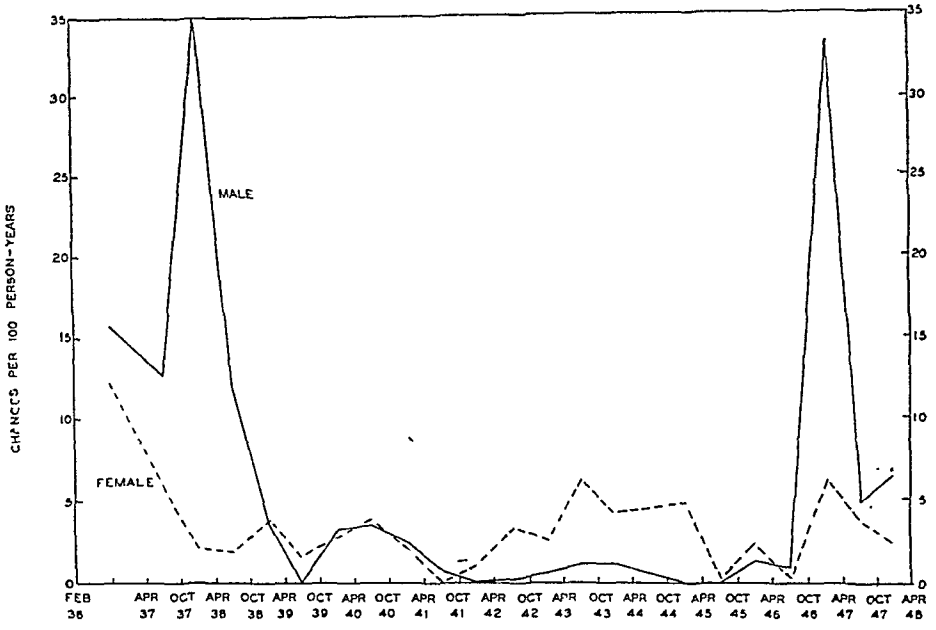
For the purpose of this report, the study may be divided into three periods. The first period was one of comparatively high incidence of infection and disease extending from the beginning of the study in 1936 to 1939. The second period lasted for about 7 years, until late in 1946. During this time opportunities for infection were materially decreased, resulting in correspondingly low levels of tuberculous infection and disease. The third period began in 1946 with the accidental introduction of one case of infectious tuberculosis into one of the buildings in the male division of the school and the consequent marked increase in tuberculin conversions and in cases of tuberculosis among the inmates of that building.

First Period—1936–1939

At the beginning of the study the prevalence of tuberculin reactors was high—52 per cent among males and 71 per cent among females. The prevalence of clinically significant tuberculosis was also high, especially among the females, 3.4 per cent of whom had x-ray evidence of clinically significant tuberculosis.

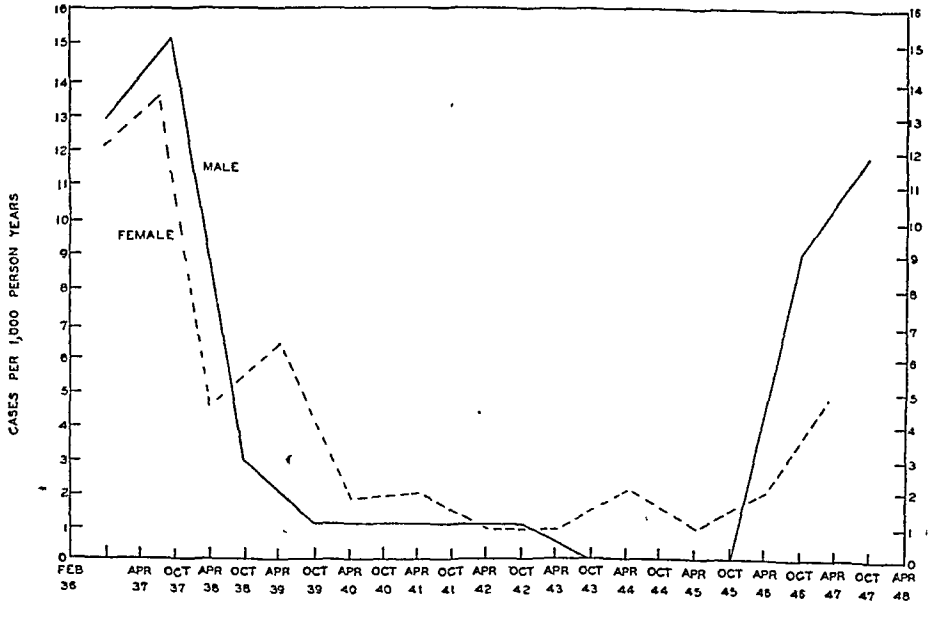
GRAPH 1

INCIDENCE OF CHANGE FROM NEGATIVE TO POSITIVE TUBERCULIN REACTION AMONG INMATES EXPOSED TO AN INFECTIOUS CASE IN NEWARK STATE SCHOOL



GRAPH 2

INCIDENCE OF CLINICALLY SIGNIFICANT TUBERCULOSIS BETWEEN X-RAY DATES AMONG INMATES EXPOSED TO AN INFECTIOUS CASE IN NEWARK STATE SCHOOL



Among the males the rate was 0.7 per cent.

During the 3½ years following the first survey, that is, during the first period of the study, the incidence of infection was especially high among males exposed to cases of tuberculosis, where the tuberculin conversions reached a peak rate of 35 per 100 person-years between October, 1937, and April, 1938 (Graph 1).* The conversion rates among the non-exposed patients were very much lower, although here, too, peaks were reached for both males and females between October, 1937, and April, 1938.

The incidence of new cases was also high during the entire first period, among both males and females in the exposed group. Among males, the maximum rate of 15.2 per 1,000 person-years was reached in the period April, 1937–April, 1938, while among females, a similar peak rate of 13.5 per 1,000 person-years was reached between April and October, 1937 (Graph 2).*

These high rates are probably due to two factors: first, the number of infectious cases found at the beginning of the study was high, and second, their isolation was not as prompt and complete as would have been desirable. This was particularly true for the female group. As for the male group, there was the additional factor that in the summer of 1937 a new boys' hospital building was opened, resulting in a sudden influx of transfers from other institutions and in the reallocation of old inmates.

Among the patients not known to be exposed to a case of clinically significant tuberculosis, only two cases developed during this first period, both diagnosed in April, 1939, in one ward of the male division.

Second Period—1939–1946

By 1939, when isolation of cases had become more nearly complete, a drop in the incidence of both infection and disease became apparent. Low rates prevailed from 1939 to 1946, so that during these 7 years only 4 new cases developed among the males and 11 among the females in the exposed group, as compared with 12 among the males and 28 among the females during the preceding 3½ year period. The rate of incidence of new cases during this second period (1.1 per 1,000 person-years of observation) was almost 90 per cent lower than the rate during the first period (8.7 per 1,000 person-years). There was a corresponding drop in incidence of change in tuberculin reaction.

Third Period—1946–1948

A sudden change in this situation occurred in the period October, 1946–April, 1947. The tuberculin tests made in April, 1947, showed that, instead of the two or three conversions which were usually found on the semiannual visits, there were 107 male patients who had become reactors since the previous October, the rate of change being 33.2 per 100 person-years in the exposed group as compared with a rate of 1.1 during the preceding 6 month period. X-ray examination of the positive reactors during that same month showed that 9 new cases of clinically significant tuberculosis had developed among males in the exposed group since the previous April, or a rate of 9.0 per 1,000 person-years.

Of the 107 tuberculin conversions, 87 were found in the boys' hospital building, and 8 of the 9 new cases of tuberculosis were found in that building. Investigation of this unusual development revealed that one patient, who had been removed from the tuberculosis ward in 1945 and transferred to one of the three wards in the boys' hospital building because he was considered to have appar-

* Tabulations of data used in the graphs and of other data to which references are made in the text have been omitted from publication to conserve space.

ently cured tuberculosis, had reactivated, and even developed positive sputum in 1947. Further investigation revealed that this patient had been working in the linen room, attending occupational therapy classes and movies and "helping around the wards" so that he had had ample opportunity to be in contact, not only with his ward-mates, but also with the patients in the other wards of the same building.

As a result of this experience, in April, 1947, all reactors in the boys' hospital were again x-rayed the following October, and 5 new cases of tuberculosis were found among them. The next examination of the entire male group, which was made in April, 1948, revealed the presence of 8 additional new cases, for a total of 13 cases in the male exposed group in the 12 month period April, 1947–April, 1948, or a rate of 11.8 per 1,000 person-years. It is very likely that still more cases will be found when the results of the semiannual survey completed in October, 1948, are known. Altogether, a total of 22 cases had occurred among the male patients in the 2 year period between April, 1946, and April, 1948, and 16 of them had been nonreactors up to October, 1946.

Study of the wards of residence of these 22 male patients revealed that 16, or 75 per cent, were living in the boys' hospital building to which the positive sputum patient mentioned above had been transferred. This building houses approximately 30 per cent of the institution's entire male population. Five of the remaining 6 boys were co-residents in another building with a patient who had been incorrectly classified as having apparently healed tuberculosis. No history of recent contact could be established for the last case.

Between the end of 1946 and April, 1948, 5 new cases of tuberculosis developed among the female patients. Four of these had a history of exposure to cases of clinically significant tuberculosis within 1 year, while in the other case the known exposure was nearly 4 years prior to diagnosis.

The experience of the exposed group is in marked contrast to that of the unexposed, as shown by the fact that subsequent to 1939 only 1 case, diagnosed in 1945, was found in the latter group.

SUMMARY AND CONCLUSIONS

The results of the first 12 years of a tuberculosis control program in an institution for mental defectives are discussed. The program has been characterized by three distinct periods. The similarity of events of the first and third periods, during which there were infectious cases of tuberculosis unsegregated, seems to indicate that the presence of even 1 case of infectious tuberculosis can result in a great increase in the incidence of both infection and disease in a very short time, and in the establishment of a chain of exposure and infection which is difficult to break. This is particularly true for individuals in a circumscribed environment such as the one in this study.

The experience shows that even when conditions for the control of tuberculosis are unusually favorable, constant, close supervision is essential to prevent the rapid spread of the disease among contacts. It also suggests that patients in such an environment would provide a suitable group for observation of the effectiveness of BCG vaccination.

Trimming the Tuberculosis Register*

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TUBERCULOSIS case and contact registers tend to grow to unwieldy dimensions. Frequent and persistent trimming is therefore essential to efficiency. The first statement will be readily admitted by tuberculosis administrators. The second warrants some elaboration.

The writer has long believed and still believes that—in addition to dropping suspects who after a relatively brief period of observation appear to be non-tuberculous, and those contacts whose exposure has ceased and who have had a reasonable period of observation—there is also a rather large category of patients classed as apparently cured to be considered. It is his belief that this last group may be included safely among those to be discharged and not followed further.

If this is a sound premise the adoption of such a procedure yields the following benefits:

1. The nurses concerned are relieved, since they are freed to follow more needy patients.
2. Private physicians tend to be more coöperative with the tuberculosis workers if they know that patients' names are not routinely throughout life kept on the register for follow-up. They will listen to chest specialists but the specialists must follow a down-to-earth policy.
3. The taxpayer benefits.
4. Finally, in many instances the patient is pleased to know that he need no longer report to the clinic. Undoubtedly some patients are over-treated and tend to become neurotic invalids; so that discharging such persons should help rebuild their morale.

It goes without saying that an apparently cured patient will occasionally have sputum that is positive on culture. This is likely to be in connection with an upper respiratory infection, and may be temporary in nature. It is true also that a few reactivate. However, in the author's experience, these individuals are usually quick to consult physicians, having become tuberculosis conscious.

It must be remembered that a considerable proportion of tuberculosis patients who reach the stage where they can be classified as apparently cured have never been aware that they had clinical tuberculosis, and that they show by x-ray examination no more evidence of disease than do a good many of those healthy people whose lesions now-a-days are revealed only by mass x-ray surveys.

What is an apparently cured case? In the 1940 edition of *Diagnostic Standards* the following requirements were laid down: absence of constitutional symptoms, sputum, if any, negative by concentration, x-ray lesions stationary and apparently healed—these requirements to have existed for two years under ordinary conditions of life. Whether the new *Diagnostic Standards* will adopt more rigid requirements or whether the term "apparently cured" will be retained is not known to this writer.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

In order to test the validity of the premise that apparently cured patients may safely be discharged from further follow-up the writer attempted to secure information from 674 patients discharged as apparently cured between January 1, 1940, and July 1, 1947. Up to October 1, 1948, information was at hand on 459. Of these, 26 had died and 14 had reactivated but are still living. The remainder, 419, or 91 per cent, are well.

Of the 26 deaths, 24 were due to causes unrelated to tuberculosis. The average age at death was 68 and these patients had been followed by the tuberculosis division for an average of 7 person-years. Two of the 26 deaths were attributed to tuberculosis. One of these, a white male aged 64, died of chronic tuberculosis of the kidney and chronic cardiovascular-renal disease. The other, a Negro female, died at 45 of a pulmonary hemorrhage. She had had a minimal lesion, stationary by x-ray for 8 years, which reactivated 3 months before death.

There were 14 additional patients whose tuberculosis reactivated. Adding the 2 who died, the 16 who reactivated averaged 54 years of age at the time of reactivation, the youngest being 29. Fifteen of the 16 were white. Eleven showed minimal lesions at the time of discharge as apparently cured. Of the 14 still living, 6 are now classed as arrested while the lesions of 8 are still unstable. Those who reactivated were followed by the department for an average of 9.1 years per person. These 16 represent 3.5 per cent of the total whose present condition is known.

Finally, 419 of the 459 are living and well as far as the present inquiry could determine. The evidence was collected through the public health nurses and through a mailed questionnaire. While this method of inquiry is not so accurate as that supplied by serial x-ray films and sputum studies, it is of value. Interestingly, a large percentage of those discharged have continued to have x-ray examinations, either privately, in clinics, or by the mobile x-ray unit. The 419, analyzed by stage of disease and time-period observed, show that: the 213 minimal cases were followed for an average of 7.8 years; the 157 moderately advanced for 9 years; the 27 far advanced for 11.5 years; and 22 miscellaneous types for 8 years.

While the evidence presented does not warrant a dogmatic statement, it seems clear that the percentage of reacting cases—3.5—is so low as to warrant a continuation of the discharge procedure. Of course, discretion is needed in discharging patients from further observation. No criteria for selection of those to be discharged can be deduced from this limited number of cases. However, from general experience, one would be more reluctant to discharge patients whose family record suggests high biological susceptibility, young patients, or those with certain associated diseases such as diabetes or silicosis. When a patient is discharged he should be cautioned to seek medical advice if health fails or suggestive symptoms appear.

There is no magic formula for keeping the tuberculosis register up-to-date. One requirement is a physician willing to give the necessary time to scrutinize the register periodically and supplement the information there noted, then in conference with the nurses drop those whose further observation does not seem important from the standpoint of tuberculosis. The information on the register may be supplemented by correspondence, by telephone, or by personal conferences with private physicians and hospitals. This type of work is uninteresting, if not distasteful, to most physicians, but it is necessary if the register is to provide its maximum value.

Poisoning Due to Ingestion of Wax Crayons*

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IT is certainly of interest to public health workers that ingestion of wax crayons may lead to severe poisoning. Poisoning by wax crayons has also an aspect of considerable industrial importance. Its occurrence demonstrates that finished dyes which are practically insoluble *in vitro* are soluble in the body, and not as harmless as described in the literature.

Innumerable children ingest wax crayons. According to crayon manufacturers, many reports of untoward effects have been received, but these complaints were not substantiated; actual poisoning was not reported until 1947. At that time, we described a definite and almost fatal poisoning due to ingestion of wax crayons.[1] Since then, 9 other cases have been published or will be published soon.[2-5] The picture of all cases has been rather uniformly that of acute, severe methemoglobinemia.

So far, four different brands of wax crayons of red-orange, orange, yellow, and violet color have been involved. We have found Para Red in red-orange and orange crayons[1]; an analysis of yellow crayons by the Food and Drug Administration[2] has shown benzidine yellow YB. Both dyes are derived from methemoglobin-forming compounds—paranitraniline and benzidine. Our investigation has concentrated on wax crayons containing Para Red, and on this dye itself.

Para Red was originally produced by coupling diazotized paranitraniline with β-naphthol. This compound has been found to be slightly soluble in water. Hence, the Para Red used in dyeing cotton is now made by coupling paranitraniline with Naphthol-AS or similar amides.[6] The pigment used in wax crayons is, according to one manufacturer, chlorinated Para Red. A sample of this pigment was examined, and also a sample of Para Red provided by E. I. duPont de Nemours and Company, Inc. Both pigments were, as far as we could ascertain, practically insoluble in water, diluted acid and alkali, or in standard solvents with the exception of benzol. Para Red was added to stomach fluid of pH 1.1 to 8.15, shaken in a Waring Blendor, incubated for twenty-four hours at body temperature, and shaken again. After filtering, the fluid did not contain Para Red. The same results were obtained with chlorinated Para Red.

We have not been able to produce methemoglobinemia in dogs and rabbits by feeding wax crayons and Para Red or by injecting concentrated suspensions of Para Red intravenously. However, Dr. Samuel S. Spicer[7] of the Laboratory of Physical Biology, U. S. Public Health Service, with whom we have coöperated in this matter, has observed methemoglobinemia and Heinz bodies in one-third of fasted cats fed red and red-

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

orange crayons. Four of six cats which had received Para Red in the diet showed methemoglobinemia and Heinz bodies, the other two cats having ingested only very small doses (0.5-0.6 gm.). Intravenous injections of suspensions of Para Red were without effect. Dr. H. Russell Irwin,[5] formerly of the Children's Hospital, Los Angeles, fed yellow crayons to cats and observed methemoglobinemia within 5 hours of ingestion. In comparing our negative results with the positive results obtained by Spicer and Irwin, it has to be taken into consideration that cats respond much more readily to methemoglobin-forming substances than dogs or rabbits.

The findings in human beings and in cats establish the fact that, in a small percentage of individuals, ingestion of wax crayons produces methemoglobinemia and Heinz bodies. The crayons examined so far contain two finished dyes derived from methemoglobin-forming compounds. Feeding of one of these dyes (Para Red) to cats resulted in methemoglobinemia and appearance of Heinz bodies when enough of the dye was ingested. Para Red is practically insoluble *in vitro*; it is apparently free of an excess of paranitraniline, of other intermediary substances or of impurities. We are continuing the study of the mechanism of this type of poisoning.

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NOTE: Since submitting this paper for publication, ten additional cases of poisoning due to ingestion of wax crayons have been brought to the attention of the author; these cases were observed in various hospitals, and practically all of them showed the characteristic picture of methemoglobinemia.

Flinn, *et al.* (The Toxicity of Wax Crayons in Animals, *J. Pediat.* 33:743, 1948) have reported that methemoglobinemia did not result from feeding orange and yellow wax crayons to rats, dogs, and cats.

Administrative Use of Records*

Participants included:

PAUL M. DENSEN, D.Sc., F.A.P.H.A., *Moderator*
MARGARET G. ARNSTEIN, R.N., F.A.P.H.A.
LEONA BAUMGARTNER, M.D., F.A.P.H.A.
EVELYN FLOOK
JOHN W. KNUTSON, D.D.S., F.A.P.H.A.
EDWARD E. SCHWARTZ
FORREST E. LINDER, PH.D., F.A.P.H.A., *Presiding*

The round table was opened with a statement of the question to be discussed, namely: what are the deficiencies in present recording procedures and forms and how may records be made more effective and less burdensome to the people who have to use them?

It was agreed that a primary deficiency of records is difference of philosophy and lack of clear definition as to the purposes they should serve. In general there are three broad uses for records as follows:

1. *Administration:* Records are used to collect information for evaluating and guiding programs.
2. *Research:* Information is collected for making special studies.
3. *Clinical or Individual Use:* Records are used by nurses and physicians for management of the individual case.

Frequently records must serve simultaneously more than one of these purposes. For example, items may be recorded for research purposes on individual case records. Frequently, information for administrative purposes must be obtained from case records.

Many record difficulties arise because the users fail to define clearly the purposes which individual items on a record must serve. Items may be included haphazardly, "in case someone may want them," without much careful consideration of exactly what is needed or why. Persons concerned with case supervision, who are usually the collectors of all types of data, do not understand why certain items necessary for other purposes are included nor are they given sufficient explanation as to what information is wanted or how it is to be used. Items required for research purposes may be left on a record form long after they have ceased to be used. In fact, many record forms are allowed to become archaic because of infrequent review of the purposes for which they are being used. The attempt to secure information for multiple purposes often results in unnecessary complication of forms and procedures.

A first step in improving the effectiveness of records as an administrative tool is study of how programs are to be evaluated. Consideration must be given in the collection of administrative statistics to provide for meeting the evaluation criteria of federal departments and state health departments as well as to provide the more detailed data needed in local administration of the program. In general, all data used for evaluation purposes attempt to measure three phases of the program: first, the extent

* Summary of a report of a round table discussion before a Joint Session of the Maternal and Child Health and Statistics Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.
Prepared by Marjorie T. Bellows, American Heart Association, New York, N. Y.

of the problem; second, amount and cost of services rendered; and third, the extent to which the services rendered have met the problem. It is the joint responsibility of the administrator and statistician to define precisely the facts needed for evaluation, to design record forms and procedures which will obtain these facts and, in coöperation with field personnel, to try out the forms and procedures to see that they obtain the desired data efficiently.

To provide better records for administrative use the following practical steps were suggested:

1. Precise definition of what data are wanted

2. Decision as to whether or not the desired information is worth getting in terms of cost, energy required, and utilization.

3. Distinction between administrative and research information. It is very frequently inefficient to try to collect both types of data at the same time.

4. Discontinuation of use of records when they have served their purpose. Two devices were suggested as means of getting rid of records. One was to approve a record form until some specified expiration date when the form must be rejustified. The other suggestion was to discontinue forms of dubious usefulness and see whether or not there was a request for them to be reintroduced.

5. Intercommunication between federal, state, and local departments in defining types of data needed by each.

6. Test studies of the use of all records before they are put into general use.

Negroes Help Themselves

Webster Parish in Louisiana has a population of about 35,000, nearly half of whom are Negroes. Early in 1947 the Parish Health Officer, E. B. Godfrey, M.D., presented to the parish Negroes a picture of Negro health conditions as found by the local health department. The Webster Parish Teachers' Institute decided on a tangible program of health supervision of school children.

During the school year 1947–1948, by an arrangement with the Phillips Hospital at Minden, and by providing bus transportation, 92 per cent of the nearly 3,500 Negro school children in the parish were given medical examinations. Treatment was recommended for 83 per cent of those examined and corrective measures taken for 7 per cent of those needing it.

Forty per cent of the children had throat defects, 30 per cent, nutrition defects, and 20 per cent, defects of teeth—the three most common conditions found.

During the current school year every child is being given follow-up treatment regardless of financial need. Other items in the current program are 100 per cent dental, eye, and chest x-ray examinations, nutrition service through school cafeterias, development of a preschool health service, among others. The next report of Webster Parish Negro School Health Service should be of special interest as a pilot program.

Evaluating A.P.H.A. Exhibits

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THE general purposes of this study were to evaluate the relative effectiveness of the 42 scientific exhibits on display at the Boston A.P.H.A. meetings, November 8–12, 1948, and to investigate some methods for pretesting such exhibits. An attempt was made to measure effectiveness both from the exhibitor's and the observer's points of view.

At times in the past, data on the amount of attention the exhibits attract and the amount of interest they sustain have been submitted as evidence of their effectiveness. Such data were not regarded in this study as evidence of effectiveness, but, rather, as evidence that certain conditions necessary for effectiveness have been satisfied. An exhibit may very well satisfy these conditions while still leaving the observer uninformed, with negative attitudes, or dissatisfied, without any desire to act.

In this study, the measure of effectiveness from the exhibitor's point of view was considered to be its success in accomplishing the specific purpose for which it was designed, whether that purpose was to incite curiosity, to inform, to educate, to elicit action of some kind, or to obtain a list of prospective customers.

CREDITS: This study was made by the U. S. Public Health Service at the request of the Committee on Scientific Exhibits: Franklin M. Foote, M.D., *Chairman*; Paul H. Brown, M.D., Homer N. Calver, Vivian Drenckhahn, Francis B. Elder, Horace Hughes. S. S. Lifson, Willimina R. Walsh. Frank Kiernan acted as an advisory member.

Grateful acknowledgment is made to the 30 A.P.H.A. members who helped in the evaluation and to Prof. Leslie Irwin of Boston University and Prof. Curtis M. Hilliard of Simmons College and their students who participated in the evaluation and served as interviewers.

THE METHODS

Two separate approaches were used in accomplishing the purposes of this study: (1) Interviews were conducted with a sample of A.P.H.A. members and visitors in a public opinion survey; and (2) a group of members and students participated in an evaluation of the success of the exhibits in achieving their objectives as stated by the exhibitors.

Methods used in earlier museum and health education exhibit studies were considered in planning this investigation. Use was also made of the findings of earlier studies in interpreting the results obtained and in outlining methods of applying the data available on successful exhibits to the improvement of new exhibits.*

The Public Opinion Survey

In all, 217 A.P.H.A. members and guests were interviewed. About 80 per cent of these interviews were made in the vicinity of the exhibit hall, but out of sight of the exhibits themselves—at the exits, in the meeting rooms, and in the cafeteria. The remainder of the interviews were made at the entrances to the meeting rooms at Hotel Statler. An attempt was made to select persons at random, but the sample cannot be considered a truly random sample of

* A discussion of the history of exhibit evaluation and the motivational basis of the present approach has been deleted for lack of space.

A.P.H.A. members attending the meetings: persons who did not attend meetings or view the exhibits on Thursday and persons who said they did not have time to participate were not represented in the sample. A comparison of the sample interviewed with the A.P.H.A. members attending the Boston meetings suggests that the sample was nevertheless fairly representative by Section membership.

The interviews with A.P.H.A. members and guests were conducted after the exhibits had been available for inspection 3½ days.

The interviewing was performed by students of Boston University and Simmons College who volunteered their services. Most of the interviewers were graduate students; many of them had had previous interviewing experience. Although only a brief instruction period was possible, internal analysis of the data suggests a conscientious job of interviewing.

Evaluation of Exhibits in Achieving Objectives

As a means of determining how well the exhibits were attaining their objectives, a comparison was made between the statements of the objectives made by the exhibitors and similar statements made by 30 A.P.H.A. members and 20 student volunteers. The members who participated in this work were assigned by A.P.H.A. Section chairmen in proportion to Section membership. The student volunteers were juniors, seniors, and graduate students from Boston University and Simmons College.

A comparison of the responses of students and A.P.H.A. members who carried out this work of evaluating the scientific exhibits served as a test of the reliability of students in evaluating such exhibits.

THE FINDINGS

The Time Spent at Exhibits

As one rough measure of the time spent at exhibits, the sample of A.P.H.A. members was asked the question, "In all, about how much time have you spent so far in going over the exhibits?"

*The median time spent as measured by the responses to this question was about 2½ hours or for the 150 exhibits, approximately one minute per exhibit.**

TABLE 1

"In all, about how much time have you spent so far in going over the exhibits?"

	Per cent *
None at all	6
½ – 1 hour	13½
1½ – 2 hours	25
2½ – 3 hours	21½
3½ – 4 hours	11½
4½ – 5 hours	7½
5½ – 6 hours	6½
More than 6 hours	8½
	100

* Percentages are based on the responses of 201 persons who answered the question in the opinion survey on Thursday afternoon.

These findings agree in general with the studies previously carried out by Robinson,[19] Derryberry and Weissman,[7] and Nielson,[17] who have made time studies of persons viewing museum and public health exhibits. In the study of exhibits displayed at the World's Fair, it was found that "the time spent in observing each of the 30 exhibits in the Medical and Public Health Building ranged from 20 seconds to 285 seconds —that is, from 1/5 of a minute to 4¾ minutes. In the Hall of Man which contained relatively small exhibits, the average observation time at each exhibit was only about one-fifth as much as would be required to make a complete inspection of it. In the Hall of Medicine which contained larger exhibits the visitor spent on the average little more than one-twentieth of the time required for a complete visit."[7]

* While the study was concerned with the 42 scientific exhibits, this particular response involved the time spent at all the exhibits present—commercial and scientific. No distinction could be made.

Nielson, who has more recently used a concealed motion picture camera to record visitor behavior in a museum, reports that "statistical analysis of time-of-stay-at-each-exhibit, revealing as it did variations in average time of from 9 seconds to 1 minute, and range of from 5 seconds to 3½ minutes per exhibit, holds great educational implications . . ."[17]

The Exhibits Most Favorably Remembered

The interview schedule used in making the survey of A.P.H.A. members contained five questions which yielded a measure of the exhibits which were most favorably remembered by A.P.H.A. members.

1. What exhibit did you like best?
2. What other exhibits did you find most interesting and worthwhile?
3. Since you have been over the exhibits, have you discussed any of them with anyone? (If *yes*) Which ones did you discuss?
4. This is a list of the scientific exhibits on display. Would you please pick out the one scientific exhibit you found most interesting and worthwhile?
5. Which other 2 of these exhibits did you personally find most interesting and worthwhile?

The first three of the questions used were free answer or direct recall questions in the sense that the A.P.H.A. member was provided with no list from which to make a selection. The last two questions were recognition questions—a list of the scientific exhibits was provided and the subject would select from this list the exhibits he found most interesting and worthwhile.* From the responses to these five questions a score was obtained for each of the scientific exhibits and a comparison could be made in terms of the total score, the score on the recall questions, and the score on the recognition questions.

Six of the 42 scientific exhibits used at the A.P.H.A. offered an opportunity for all visitors to participate by acting in carrying out a personal purpose.† This was in addition to a number of exhibits which offered consultation services to persons with specific interests. Those offering all visitors an opportunity to act in some way in achieving a personal purpose were:

The American Public Health Association Exhibit—"An Exhibit is an Exhibit is an Exhibit"—offered assistance in planning exhibits.

The Brookline Health Department exhibit gave diabetes tests to persons who were interested.

The Massachusetts Department of Public Health exhibit provided an opportunity for visitors to obtain eye examinations.

The Merit System Service exhibit offered tests to visitors.

The National Publicity Council for Health and Welfare Services exhibit invited visitors to take tests and to discuss and obtain health education materials.

The U. S. Public Health Service exhibit offered an opportunity to take part in demonstrations, to discuss jobs in the service, and to obtain and discuss health materials available through the U. S. Public Health Service.

The six exhibits that offered visitors a chance to act in achieving a personal purpose were heavily represented among the most favorably remembered exhibits.

Visitor participation in satisfying a personal purpose was a feature of:

5 of the 6 exhibits receiving the highest recall score

3 of the 6 exhibits receiving the highest recognition score

4 of the 6 exhibits receiving the highest total score (Table 2)

The recall score was considered to be the better of these measures of the success of an exhibit. Recall questions probably yield a truer estimate of what people carry away from the exhibits in their experiences, rather than in their notes

* The exhibits were listed in alphabetical order. Some bias may have resulted from the order in which the exhibits were listed, but the score distribution shows no apparent relation to the order of listing.

† This conclusion is drawn from an examination of descriptions of the scientific exhibits as published in the Official Program, Seventy-sixth Annual Meeting, American Public Health Association, November 8–12, 1948, pp. 71–75.

TABLE 2

The Exhibits Most Favorably Remembered

Exhibits with highest recall score	
* U. S. Public Health Service	43
* National Publicity Council	41
* Merit System Service	25
American Cancer Society	25
* Massachusetts Department of Public Health	20
* Brookline Health Department	17
Exhibits with highest recognition score	
American Cancer Society	68
* U. S. Public Health Service	59
* Brookline Health Department	38
* Massachusetts Department of Public Health	36
American Heart Association	33
World Health Organization	32
Exhibits with highest total score	
* U. S. Public Health Service	102
American Cancer Society	93
* Massachusetts Department of Public Health	56
* Brookline Health Department	55
* National Publicity Council	52
World Health Organization	44

* Indicates that this exhibit offered visitors an opportunity to act in some way in achieving a personal purpose.

and literature. They are most like the questions our friends ask us when we have returned from a convention—"What exhibits did you like best?" Our friends do not have a list of the exhibits for us to look at in giving our judgment. Nor do we normally refer to our notes and literature before we reply.

It was observed that a few exhibits tended to obtain relatively higher scores on the recall questions than on the recognition questions whereas a few exhibits obtained relatively higher scores on the recognition questions. The four exhibits in which the recall score was most disproportionately high and those four in which the recognition score was most disproportionately high were selected for analysis in order to obtain some insight into the features of the exhibits most frequently recalled but not selected from a list as having high merit.

When this comparison is made, it is found that three of the four exhibits having a relatively higher recall score were exhibits in which visitors could participate in satisfying a personal purpose. On the other hand, not one of the four exhibits having a relatively higher recognition score was an exhibit in which visitors participated in this way. There was a tendency for the technically elaborate exhibit to be more often selected from the list and for the exhibit which

	Recall score	*Recognition score*
* An Exhibit is an Exhibit	8	–
Massachusetts Tuberculosis and Health League	11	2
* Merit System	25	9
* National Publicity Council	41	11
American Academy of Allergy	5	17
American Heart Association	5	33
National Tuberculosis Association	3	16
Research Council on Problems of Alcohol	3	13

provided an opportunity for participation to be more frequently mentioned when no exhibit list was available to stimulate the response.

The Exhibits that Were Best Understood

Each of the 42 exhibitors was asked to complete these statements about his exhibit in no more than 25 words:

"The primary objective of our exhibit is . . ."

"The main points we want to impress upon those who see it are . . ."

The 30 A.P.H.A. members and 20 students participating in the evaluation were provided with data sheets and were asked to complete these same statements for each of the scientific exhibits present. They were advised of the purpose of the study, and were asked not to rate or rank the exhibits, but only to complete these statements to the best of their abilities. No time limit was set for viewing any particular exhibit; the data sheets were returned in about 48 hours.

Three of the A.P.H.A. exhibits (National Publicity Council, Merit System, Vocational Guidance) were not included on the data sheets used for this evaluation because they were considered by the A.P.H.A. to be services rather than exhibits. It is significant, however, that the membership interviewed thought otherwise; the National Publicity Council and Merit System exhibits were among those most favorably remembered, as measured by direct recall questions.

A comparison of the exhibitor's statement of objectives and the observer's statement of objectives has been made for each of the scientific exhibits studied. The findings have been presented individually to the exhibitors for their information. This analysis, however, brought out some relationships pertinent to anyone planning a scientific exhibit:

1. Nearly all the exhibits studied served some purposes different from those planned by the exhibitor. In some instances, objectives not mentioned by the exhibitor were most frequently stressed by the observers as the primary objectives of the exhibit.

2. Exhibits with simple, clear objectives were better understood. A close relationship existed between the simplicity of the objectives and the frequency with which they were reported by the observers. Difficult vocabulary and statistics lead to poor understanding.

3. Some exhibits were designed to satisfy purposes of the audience; others were planned to achieve objectives of specific interest to the exhibitor but of secondary interest to the audience. (Example: to promote the name or program of the sponsoring agency.) Exhibits planned to satisfy the purposes of the audience were more successful in achieving their objectives than exhibits aimed toward furthering purposes specific to the exhibitor. Observers tended to interpret the exhibit objectives in the light of their own experiences and wants.

4. The findings of the present investigation suggest that college juniors, seniors, and graduate students can be successfully employed to pretest exhibits designed for professional audiences. Their interpretation of the message imparted by the exhibits were very similar to the interpretations given by A.P.H.A. members.

Suggestions of A.P.H.A. Members for Improving Scientific Exhibits

In the public opinion survey of A.P.H.A. members and guests, the question was asked:

"Do you have any suggestions for making the scientific exhibits more useful and effective so A.P.H.A. members would get more out of them?"

In response, more than half of those interviewed offered suggestions for improvement. (See Table 3.)

About one-fourth of the suggestions offered were concerned with improving the exhibit in some physical way, by putting more life into them through the use of gadgets, visual aids, color, movement, graphs, etc., or by building them to present specific central themes.

Another fourth of the suggestions indicate that many members desire more opportunity for an interaction between the observer and the exhibit. These members ask for better and more active

TABLE 3

"Do you have any suggestions for making the scientific exhibits more useful and effective so A.P.H.A. members would get more out of them?"

Suggestions about exhibit makeup		25%
Should put more life into them by using more gadgets, visual aids, color, movement, graphs, etc.	18%	
Should have central and specific themes	7	
Suggestions concerning greater interaction between observer and exhibit		25%
Should have better and more active attendants	9	
Should have more audience participation	9	
Should offer more literature, samples	4	
Should include demonstrations or lectures	3	
Suggestions about location, spacing, grouping, selection		53%
Should have better location, more and better spacing	26%	
Some other (specific) organization should have had exhibit	9	
Scientific exhibits should be given better and separate location	7	
Should reduce number of scientific exhibits and increase standards	6	
Should have better grouping and organization	4	
Should call them Educational Exhibits	1	
Suggestions about guidance and programs		17%
Should have better maps, directions, signs, etc.	9%	
Should keep time on program open for exhibits	5	
Should have better reception facilities, seats, lounges, etc.	3	
Other suggestions		4%
		*
No suggestions	100	
Number of cases	217	

* Percentages are based on 117 persons who gave suggestions. Percentages add up to more than 100% because some persons offered more than one suggestion.

attendants more opportunity for audience participation, literature and samples, demonstrations or lectures.

APPLICATION OF THE FINDINGS: THE PRETESTING OF EXHIBITS

Pretesting is one means of applying the findings of evaluation to an operating program. It is the positive side of evaluation. It is the one means we have of making immediate use of data collected in earlier evaluation studies.

In the case of exhibits, for example, studies carried out at the New York World's Fair, the study of exhibits at the A.P.H.A. conference in Boston, and the findings obtained in other investigations have provided us with objective data on the characteristics of the more successful exhibits. We can apply these data in testing planned exhibits to determine whether or not it is possible for new exhibits to be effective.

On the basis of such pretests, concrete recommendations for improvement can be suggested, and desirable revisions made prior to displaying the exhibit—in fact, in large part before building the exhibit. At times some estimates may be made as to the probable effectiveness of the exhibit as related to its cost in time and effort.

It is important that this pretesting or preëvaluation be carried out on groups similar to those toward which the educational program is being directed. Persons of different economic, social, and educational levels differ so widely in their experiences and in their goals in life that it is not possible for them to view social situations in the same manner. Professional persons observing an

exhibit designed for a low income group may react in a manner completely different from the non-professional worker for whom the exhibit is planned. Only by testing the exhibit on a group of these lower income persons toward whom it is directed can we be certain that the exhibit is able to put across the message it carries.

Several approaches may be made in evaluating an exhibit prior to using it. The answers to the following questions will yield an operational index to the probable success an exhibit will have in imparting a well understood message to the largest possible audience at a minimum cost per effective exposure.

Is it physically possible to read the exhibit from the point of observation?

It seems obvious that the size of print, adequate contrast of light and dark, the possible obstacles to easy reading or easy observation, the location of pamphlets or other reading materials in the normal focus of attention, etc., can be determined prior to using an exhibit. In practice however, this simple requirement of the possible success of an exhibit is not always met. As a result, exhibits are sometimes displayed in such a way that the audiences cannot successfully follow them even though they might otherwise be inclined to do so.[5, 6]

As a test, the exhibit can be given a trial exposure to a group of laymen. If they indicate in response to a series of questions that they have had difficulty seeing any part of the exhibit clearly, or that they have had to get into awkward positions to view the entire exhibit, revisions should be made.

Attendants should be advised of this problem so they do not permit vases, hats, coats, seated visitors, etc., to obscure the exhibit. If materials are available for distribution they should be placed where they can easily be seen. Materials placed on racks below the exhibit are frequently overlooked.

Does the exhibit sustain interest long enough to be read completely?

Previous studies already cited have shown that few people spend much more than 1 minute at any single exhibit unless the exhibit is especially successful in sustaining interest. An exhibit that does not involve the visitor in some purposive activity is not likely to impart a complete message unless that message can be read within 1 minute.

Prior to completing an exhibit, a test can be made of the time required to observe the exhibit and to read the complete message. A number of lay persons can be timed while they read through the entire exhibit at their normal reading pace.

Is the vocabulary and style of writing used such that the intended audience can comfortably follow and understand the exhibit?

Frequently the terminology and style of writing used in an exhibit is such that only a small proportion of the intended audience can understand the text or labeling. Experts tend to forget that the most frequently used terms in their area of specialty may be completely foreign to persons having a different pattern of education and experience. They may err in attempting to rely on their personal estimates of the level of understanding of audiences of lay persons or persons in other areas of specialization.[2, 5, 6]

Before an exhibit is completed, objective measures can be employed to determine what level of reading ability is required to understand the labels, text. One of several available scales of readability, such as the Flesch Scales[8] may be used for this purpose. The Thorndike word list[22] or some other word list based on the frequency of popular usage or understanding can be employed to locate specific words or terms that may not be fully understood.

Will all graphs, charts, and diagrams be clearly understood by the intended audience?

There is need for more data on the capacity of adult populations to understand graphic techniques used in exhibits. Studies made of school children suggest that children leave grade schools without adequate training in the interpretation of graphs and charts. Since little emphasis is placed upon the interpretation of such media during the high school years, it is possible that even simple graphic techniques may be misunderstood.

Charts, graphs, or diagrams which seem simple to persons with one pattern of experience may have no meaning at all to persons without such experience. This may account in part for the low interest shown by many adults in the graphic health exhibits displayed at the World's Fair.[6]

Diagrams, pictures, charts, figures, objects, instruments, and other materials which are self-explanatory to the exhibitor are sometimes completely unfamiliar to the layman. Failure of exhibitors to realize this has sometimes resulted in inadequate labeling and the use of unexplained materials. Serious errors in interpretation result.

Calver,[2] Cummings,[5] and Derryberry [6] have all emphasized the need for getting the responses of lay persons to charts, graphs, or other visual materials used. This may be done by having a number of laymen view the exhibit and respond to some direct questions about the meanings of different parts of the exhibit. This will assure that all parts of the exhibit will be clearly understandable to the intended audiences.

Does the exhibit tie in with the interests of the visitor and offer him a chance to participate in satisfying a personal purpose?

Findings from a number of investigations indicate that when people have a chance to participate actively in the learning process they learn more quickly. This is especially true when the goal to be achieved is one in which they are personally involved. The needs, values, and purposes people have serve them as filters in sifting out of the environment certain things to see and hear, to remember and to act upon. New information is accepted and new attitudes are assumed when these fit in with and serve personal needs, values and purposes.[2, 4, 10, 16]

These findings are as applicable to exhibits as to other educational media and techniques. The exhibits that attract most attention, sustain interest, and are remembered most favorably tend to be those that provide an opportunity to talk, to discuss problems, ask questions, obtain literature, take tests, or act in some other way in satisfying a personal purpose.

Will the exhibit impart a message that it is desired to impart?

In the present investigation, as in the study of health exhibits at the World's Fair,[6] it was found that the exhibits with a single, clear theme were better understood than those that attempted to cover too much ground. An attempt to present too many or too difficult objectives leads to confusion on the part of some of the observers and indifference on the part of others.

A student or lay group can be used to test the effectiveness of an exhibit in imparting a fully understood message. Observers can be asked to write a statement of the primary objective and main points impressed by the exhibit. These can then be compared with the exhibitor's statement of objectives and main points as in the present study. Care should be taken to assure that the observers arrive at their conclusions independently without direction or influence. Lack of agreement between the exhibitor's and observers' statements

will suggest steps which may be taken to improve the effectiveness of the exhibit in getting its message across.

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THE ACCIDENT-PRONE INDIVIDUAL

THE word "accident" carries with it a strong flavor of unpredictability and causelessness. In its various definitions, Webster uses the phrases: "an undesigned and unforeseen occurrence," "chance, contingency," "fortuitous or nonessential property," "an unexpected happening not due to any negligence or malfeasance."

Accidents of the quality suggested by these terms may occur, as when a house is struck by lightning; but such occurrences are rare. The vast majority of accidents are not in the true sense due to "chance." They are not "fortuitous," but the result of human action (or inaction). They can in large measure be foreseen; and, though not "designed" consciously, they are in a subtler sense determined by underlying trends of human personality.

Furthermore, the qualities which lead to accidents are more often to be found in the subject who suffers from the accident than in the carelessness of some other individual. A bridge may collapse because it was badly constructed. A pedestrian may be killed by a reckless driver without any error of his own. On the whole, however, the major proportion of accidental casualties are victims of their own personality make-up.

This fact has been clearly demonstrated in the case of street accidents. A six year study in the State of Connecticut showed that less than 4 per cent of the drivers involved in traffic accidents were concerned in 36 per cent of all such accidents. The same relation has been clearly shown in industry. A large trucking company reduced its accident rate to one-fifth of its previous level by discovering its accident-prone drivers and transferring them to other occupations, and in their new occupations, these drivers maintained their accident-proneness, though with less serious results. There is no such clear evidence with regard to home accidents; but there can be no doubt that the same basic principles obtain. Helen Flanders Dunbar has characterized the malady from which such individuals suffer as "accidentitis."

Franz Alexander [1] has presented a most helpful analysis of the accident-prone personality. The factors related to this type of individual are not clumsiness or

stupidity or absent-mindedness; but are concerned with much more fundamental traits of emotional make-up.

Dunbar [2] describes the accident-prone individual as "decisive or even impulsive. He concentrates upon immediate pleasures and satisfactions. He is apt to act upon the spur of the moment. He likes excitement and adventure; he does not like to plan and prepare for the future."

A second factor in accident-proneness, of even more fundamental significance, has been indicated by studies such as those of Rawson [3] and Ackerman.[4] This is an instinct of rebellion and resentment, the "show-off" and "don't give a damn" type of psychology. Two cases illustrate this point. "A youth was driving his mother on a shopping tour. He begged her for the use of the car for a fishing party the following day. She refused, whereupon he fidgeted angrily, 'accidentally' stepped on the accelerator and sent the car into a ditch." Again, a 16 year old boy says, "It was really my fault because mother said supper was ready and I was not to go out. I went out anyway, got into a wrestling match and got my arm broken. Anyway, *I guess mother's sorry she's so strict with me.*" These happen to be adolescent cases but, of course, the same feeling of rebellious self-assertion carries on into adult life. The person concerned does not plan an accident; but the psychiatrists say that "most accidents are unconsciously intended," in the sense that the victim is motivated by basic desire for violent action.

Finally, the psychiatrists discern, in many accidents, a still more subtle factor, an underlying sense of guilt combined with the motive of self-assertion—a sense which subconsciously seeks self-imposed expiation. Alexander cites the case of a man who had led a highly frustrated life, complicated by a violent quarrel with his father. He suffered an automobile accident on the way to the psychiatrist's office and when visited in the hospital, bandaged up like a mummy, "all one could see of his face were his eyes, shining with a euphoric light. He was in good spirits, free from the oppressive melancholy of recent days. The contrast between his physical condition and his mental state was striking. The first words with which he greeted me were, '*Now I have paid for everything*, now I will at last tell my father what I think of him.'"

Dr. Alexander closes his paper as follows: "In summary, the accident-prone individual is an impetuous person who converts immediately into action his momentary impulses without deliberation and planning. He harbors a deeply ingrained rebellion against the early excessive regulations of his upbringing—a deep resentment against persons in authority. At the same time he has a strict conscience which makes him feel guilty for this rebellion. In the unconsciously provoked accident he expresses his resentment and revenge, at the same time atoning for his rebellion by his injury."

An important corollary of this new concept of the psychological factor in accidents is the responsibility of the health department in accident prevention. When we thought of the accident hazard as primarily an engineering problem, control of this hazard might properly be assigned to the highway department and the labor department. If, as we now begin to realize, it is most often a problem of human psychology, the health department, with its medical background, is the indicated agency. The treatment of the accident-prone individual may generally be so serious a psychotherapeutic problem as to be far beyond the range of present-day planning. The recognition of such an individual is a much simpler

task; and his removal from the steering wheel of a car, or from the proximity of a dangerous machine would be a fruitful objective for the health administrator.

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SANITARY NEEDS OF THE NATION

AT our Boston meeting last year, Abel Wolman called attention to the fact that we still fall far short of desirable standards in the fulfillment of the elementary needs of basic sanitation.[1] A recent issue of *Public Health Reports* [2] gives a clear quantitative picture of the extent of our deficiencies.

This survey was conducted by a sampling method, covering communities including 75 per cent of the population of the United States. The proportion was over 95 per cent in communities of 25,000 population or more, but graded down to 65–70 per cent in communities of between 5,000 and 25,000 population, to 25 per cent in communities of 500–1,000; and to 12 per cent in communities under 500.

It was estimated that some 80 million people need new or improved public water works; and the figure for new or improved sewage systems is 86 million. Better facilities for disposal of garbage and refuse are needed by some 70 million people. Adding to either of these figures about 30 million persons in rural areas in need of improved water supply and excretal disposal, we get a picture of over two-thirds of the population in which full sanitary ideals have not yet been attained. It should be remembered that the great majority of these needs in cities are for improvement or extension of existing systems; but over 2 million persons live in communities which should have community water supplies which they now lack; and over 6 million people live in communities which should have sewerage systems which they now lack.

The total cost of all desirable improvements is estimated at over 2 billion dollars for water supplies, nearly 4 billions for sewerage and sewage disposal, nearly 2 millions for garbage and refuse disposal, and nearly 2 billions for rural sanitation—$7,834,000,000 in all. By states, the estimates run from $5 millions in Nevada to over $1,447 millions in New York.

Surgeon General Scheele in his introductory foreword points out that this study "represents the first evaluation of our sanitary facilities on a national scale by actual field investigations. Concerted action in satisfying the needs outlined in the report should take us a long way toward providing a safe environment in which everyone may live."

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NITRATES IN RURAL WELL WATERS

OLDER workers in the field of water bacteriology will recall the gradual replacement of chemical analysis by bacteriological examination as a criterion of the sanitary quality of a water supply. Long ago, the uselessness of determinations of "free ammonia" and "albuminoid ammonia" became clear; although too many health department laboratories continued to make such analyses for years after they

had lost any meaning. Those who considered the subject thoughtfully, however, pointed out that the nitrate content of a ground water might still have some significance, as indicative of pollution so remote that colon bacilli might not be found in significant numbers at a given moment but might be present under some other conditions.

In 1940, Schwartz and Rector[1] called attention to the extremely interesting possibility that the nitrates themselves might play an important role in disease causation on their own account and not because of their fecal origin. A series of studies during the past five years has indicated the soundness of this conclusion. In particular, Johnson, *et al.*[2] and, particularly, Robertson and Riddell[3] have made important contributions to this subject. Cornblath and Hartmann[4] demonstrated that when the nitrate content of water is high, the nitrates may be changed to nitrites in an infant having a high gastric pH; and that these nitrites when absorbed in the blood stream, may change hemoglobin to methemoglobin, causing anoxemia and cyanosis.

Robertson and Riddell[3] report 12 cases of cyanosed infants in the Regina area. Ten of these cases were definitely identified as methemoglobinemias; two of them fatal. All were in infants who had been fed on formulas containing water of high nitrate content from shallow wells. These authors present the results of analyses of 2,000 water samples from rural Saskatchewan wells, which showed 31 per cent containing more than 10 p.p.m. of the nitrate ion and 25 per cent containing more than 20 p.p.m. The latter is a figure which they believe indicates a serious hazard, and—like the Iowa workers—the Saskatchewan authors suggest 10 p.p.m. as a desirable limit. The problem deserves the serious study of health laboratories in all our rural areas.

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WILLIAM A. EVANS

THE Association lost one of its distinguished old-time leaders in the death of William Augustus Evans on November 8, 1948, at the ripe age of 83. Dr. Evans was born in Marion, Ala., August 5, 1865. He took his medical degree at Tulane in 1885, and six years later moved to Chicago. He taught at the College of Physicians of the University of Chicago until 1908 (with the rank of Professor from 1895). In 1907, he was appointed Health Officer of Chicago, serving in that capacity for four years. In 1908, he joined the faculty of Northwestern Medical School, holding the title of Professor of Public Health Emeritus in that school at the time of his death. In 1910, he received the degree of LL.D. from his Alma Mater, Tulane (and later from the University of Mississippi in 1921). At the close of his term as Health Commissioner in 1911 he received the degree of Dr.P.H. from the University of Michigan. He served as President of the American Public Health Association in 1917.

Dr. Evans was one of the most vigorous and progressive health officers of his day and generation. In Chicago he was responsible for three policies which represented notable vision thirty years ago. He took a strong stand for the pasteurization of milk (then not a very popular cause). He was one of the first

health officers to initiate active study of the problems of air hygiene, bringing together hygienists and engineers to discuss them and formulate policies for school and factory ventilation. Finally, he was a bold and effective pioneer in health education. His weekly bulletin (in an edition of 7,000), his special bulletin for factories and stores, his well organized lecture bureau, were far in advance of the times; and on his retirement from the Health Department in 1911 he became health editor of the *Chicago Daily Tribune*, continuing his educational work through its columns for twenty-three years.

The highest quality of a health administrator is, perhaps, his ability to do what others will be doing twenty years later. By this standard, W. A. Evans earned a place of distinction in American public health.

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World Today 19:730, 1910.

Take a Test

The Merit System Service booth at the American Public Health Association annual meeting in Boston attracted considerable attention with its "TAKE A TEST" exhibit. This consisted of six short sample tests, designed to illustrate the type of service being offered by the Merit System Service and to show how public health information, experience, and judgment can be measured by objective examinations.

The exhibit was repeated at the Western Branch meeting of the American Public Health Association in Los Angeles, Calif., May 30 to June 1.

The results for the Boston meeting are available in an attractively bound report which contains copies of the six sample tests, an answer key, an analysis of the scores of the persons tested, and an analysis of the items themselves. The latter illustrates the method which is used to evaluate the effectiveness of individual questions. The report may be obtained by writing to the Merit System Service, American Public Health Association, 1790 Broadway, New York 19, N. Y. $1.00.

Q Fever

A Note Clarifying the Identity of American Strains of *Coxiella burnetii*

ELIAS STRAUSS, M.D., AND S. EDWARD SULKIN, PH.D.
Dallas, Tex.

THE purpose of this note is to call attention to a confusion in the literature regarding the identity of the Nine-Mile [1] and Dyer [2] strains of *Coxiella burnetii*. A number of statements are made in the literature which would indicate that these strains are identical.[3-5] Since publication of our paper, "Q Fever. Complement-Fixing Antibodies with *C. burnetii* Antigens in Various Geographic Areas and Occupational Groups in the United States," which appeared in the *American Journal of Public Health* (39:492, (Apr.), 1949), it has been called to our attention [6] that these two strains differ significantly in their immunologic properties. Subsequently, Dr. Herald R. Cox [7] has stated that, "On the basis of quantitative complement-fixation studies it has been conclusively demonstrated that the Dyer and Nine-Mile strains are not similar in respect to their serological sensitivity and specificity, and that both Nine-Mile American and Henzerling Italian are much more sensitive than the Dyer American; also, that there is no essential difference between the Nine-Mile and Henzerling strains in this respect." These observations have been confirmed by Smadel and his associates.[7] We are informed that these data are to appear shortly in the *Journal of Immunology*.[8]

In view of the foregoing, it should be emphasized that the serologic studies reported by us in the April, 1949, issue of the *American Journal of Public Health* were performed entirely with complement-fixing antigen prepared with the Nine-Mile strain. This is also true of the serologic studies carried out in connection with the Amarillo epidemic.[9, 10] The implication in our paper that "an even greater number of sera would have fixed complement had the Henzerling strain been employed" is consequently unwarranted.

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Clearing House on Public Health Salary Information and Personnel Needs

RAINBOW OF RECRUITMENT PAMPHLETS

Public Health—A Career With a Future has gone through two editions. Now its children—*Careers With A Future*—have begun to appear on the scene. The first two arrived in May and are called respectively *Industrial Hygiene* and the *Engineer and Sanitarian in Public Health. Industrial Hygiene* includes the industrial physician, nurse, engineer, and chemist. For each of the six jobs there are a brief description of the job, the requirements, employment opportunities, salary ranges, and training facilities.

The pamphlets are prepared under the supervision of A.P.H.A.'s Committee on Professional Education which is distributing them. They are brief, attractively produced in various colors and carry a reproduction of the Association's Seal on the cover. When and if all are published—the if depending on money to pay the printer—they will be a rainbow of colors, at the end of which it is the hope that there will be a pot of golden recruits.

A FILM FOR RECRUITMENT

"Journey into Medicine" (See *A.J.P.H.*, 39:7 (July), 1949) is a film originally prepared for the United States Department of State for showings outside of the United States only. It has now been released for showing in this country. It is an appealing story of the lad who went to medical school, became a pediatrician in order to get at early causes of ill health, and then found he needed to go even further back to get at prevention, and became a public health physician.

The regional offices of the U. S. Public Health Service have copies for loan. It can be purchased from Castle Films, 30 Rockefeller Plaza, New York 20, $46.84 with a 10 per cent discount for non-profit agencies. This film will be shown as a part of the film program at the A.P.H.A. Annual Meeting in October.

MUNICIPAL PAY RATE TREND UP

The International City Managers Association has made a survey of pay rates for 20 common municipal jobs, largely semiskilled or clerical, in 99 cities, from which it concludes that "cities that granted pay increases in 1948 generally raised all salaries and not just those of certain jobs." For 15 of the jobs there were increases in more than 80 per cent of the cities; four jobs in between 75 and 80 per cent. Although, except for some clerical workers, these are not public health workers, nevertheless the study might be useful, at least for the cities included, as an evidence of the "signs of the time" in the community. Pay Rates for Selected City Jobs in January, 1949, International City Manager's Association, 1313 E. 60th St., Chicago 37. The study is not available for general distribution but the Mayor's office will probably have it.

CATCHING THEM YOUNG

The National Organization for Public Health Nursing has an Advisory Committee on Vocational Counseling, whose chairman is Ruth E. Rives, who is the assistant director of public health nursing in the New York State Department of Health. This committee, in the apparent belief that practising public health nurses have an opportunity—and a responsibility—to guide youngsters into the profession, has recently sent the following letter to N.O.P.H.N.'s member

agencies, to its state associations, to directors of university programs of study and state divisions of public health nursing, and, for information, to state nurses' associations:

As this letter is written there are hundreds of unfilled openings for public health nurses in the United States. The shortage of public health nurses has reached a dangerous point. Budgeted positions are crossed off budgets, services are curtailed, and essential services are not rendered in many localities. The standard of one public health nurse for 5,000 population except where bedside nursing is included in the generalized program—where one nurse for 2,000 population is recommended—has become highly unrealistic in the majority of communities.

The Joint Committee on Careers is not financially in position at this time to recruit for any of the special services, including public health nursing. Individual public health nurses can help with recruitment for their field. They are strategically placed: in the homes where they meet young people and their parents, in the schools where they may discuss nursing with teachers, counselors, and students, and in many community group activities which are rich sources for recruitment.

Agencies might consider offering the services of selected qualified staff nurses as vocational counselors to student nurse groups. These counselors, who should be particularly enthusiastic about public health nursing, might function in a big sister capacity to one, a few, or a large group of students. They might participate in professional adjustments classes. The objective of this "sistering" is the recruitment of desirable candidates into our special field.

This big sister plan may be transferred to high school groups, also, with the aim of recruiting for basic nursing preparation. Of course this plan should be discussed and carried out jointly with other community groups working on recruitment.

Does this appeal to you? Do you have any other ideas to share? Can the N.O.P.H.N. Advisory Committee on Vocational Counseling help you with your plans for the promotion of recruitment for nursing and for public health nursing? We should like to hear from you.

How about the Association of State and Territorial Health Officers, of State Laboratory Directors, the Conference of Municipal Public Health Engineers, and similar bodies developing some type of grass roots recruitment program?

ANOTHER NURSE RECRUITMENT PLAN

The New York City Department of Health has presented to the Budget Director a plan to fill vacancies for public health nurses, 326 now in the department's employ. The plan, endorsed by medical, nursing, and public health leaders calls for increasing the starting salaries of public health nurses from $2,400 to $3,000 a year, including the city cost of living bonus, and graduate nurses meeting public health nursing requirements would receive an increase of $600 a year. About 125 trainees would be accepted annually for an orientation program followed by university training at the city's expense, the educational program to be modeled after that of the New York State Department of Health.

GEORGIA LURES NURSES

The 1947 report of the Georgia State Health Department has just come to hand. The Division of Nursing has an interesting nurse recruitment page that might well be used as a poster with which to plaster the roadside fence posts, as well as the more formal bulletin boards in nursing and other schools. It's a drawing of a nurse (of course she's attractive); a caption that says, "Greater Salaries for Georgia Public Health Nurse!"; the former and current pay scale for three grades of public health nurses showing from 10 to 15 per cent rise; and the address of the Nursing Division. Incidentally, the Georgia Health Department has revised its "A Career in Public Health Nursing" to include, in response to many requests, a description of some of the activities of the public health nurse, and is accordingly called, "Services of Public Health Nurses in Georgia."

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR 1949-1950

The Executive Board of the American Public Health Association, on May 25, 1949, acted favorably on the recommendations concerning accreditation of schools of public health submitted by the Committee on Professional Education. The Executive Board voted to reaccredit 10 schools for the degree Master of Public Health (M.P.H. in the United States; the equivalent degree of the University of Toronto is the Diploma of Public Health, or D.P.H.). Eight of these institutions were also accredited for the degree of Doctor of Public Health (Dr.P.H.). Tulane University, for the first time this year is accredited for the Dr.P.H. degree in addition to the M.P.H. degree.

A new step in the accreditation program of the American Public Health Association (announced in the *American Journal of Public Health*, April, 1949, p. 535) now also provides for accreditation of Master's degrees other than the M.P.H. with specialization in the field of public health education. This type of accreditation is limited to institutions with schools of public health already accredited for the M.P.H. degree. Five of the 10 schools of public health accredited for the M.P.H. degree applied and were accredited for Master's degrees other than the M.P.H. with specialization in public health education. The kind of Master's degree granted varies with the overall structure of the individual graduate school. At the University of Toronto the equivalent of such a Master's degree is the Certificate in Public Health (health education).

Below are listed the schools accredited for 1949–1950, the types of degrees for which they are accredited, and the names of the deans or directors:

INSTITUTIONS ACCREDITED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION FOR THE ACADEMIC YEAR 1949–1950

Institution	*Degrees Accredited*		
	Master of Public Health (M.P.H.) *	*Doctor of Public Health (Dr. P.H.)*	*Master's Degree other than the M.P.H.† in Public Health Education*
California, University of School of Public Health Berkeley 4, Calif. E. S. Rogers, M.D., Dean	x	x	
Columbia University School of Public Health New York 32, N. Y. H. W. Brown, M.D., Acting Director	x	x	
Harvard University School of Public Health Boston 15, Mass. J. S. Simmons, M.D., Dean	x	x	
Johns Hopkins University School of Hygiene and Public Health Baltimore 5, Md. E. L. Stebbins, M.D., Director	x	x	
Michigan, University of School of Public Health Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	x	x	
Minnesota, University of School of Public Health Minneapolis 14, Minn. G. W. Anderson, M.D., Director	x		x

INSTITUTIONS ACCREDITED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION FOR THE ACADEMIC YEAR 1949–1950 (Cont.)

Institution	*Degrees Accredited*		
	Master of Public Health (M.P.H.) *	*Doctor of Public Health (Dr. P.H.)*	*Master's Degree other than the M.P.H.† in Public Health Education*
North Carolina, University of School of Public Health Chapel Hill, N. C. E. G. McGavran, M.D., Dean	x	x	x
Toronto, University of School of Hygiene Toronto 5, Ontario, Canada R. D. Defries, M.D., Director	x		x
Tulane University Department of Public Health New Orleans 13, La. M. E. Lapham, M.D., Dean	x	x	
Yale University Department of Public Health New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	x	x	x

* Diploma in Public Health, D.P.H. at the University of Toronto
† Certificate in Public Health, C.P.H. at the University of Toronto

Credit Lines

A RURAL COUNTY SURVEYS ITSELF

A survey of Columbiana County, Ohio, entitled, "You and Your Neighbor" has been published by the agricultural extension service of the Ohio State University. The study was based upon interviews with citizens by citizens, 317 persons interviewed 4,789 rural families comprising 16,790 individuals. They found inadequate protection against diphtheria, whooping cough, and smallpox, and made suitable recommendations. With respect to tuberculosis a single tuberculosis program and a single health department for the entire county were recommended. Water supply, sewage disposal, brucellosis, and dental care were all surveyed with recommendations.

The Rural Health Council planned and conducted the study to secure a maximum of local involvement in finding and correcting existing health problems. Twenty township survey chairmen helped to make the survey possible.

Columbiana County has not been standing still. In 1949 it has secured a health center for its county health department, stepped up its tuberculosis program with a medical director, three nurses, and new clinic facilities. It secured a full-time health commissioner after a technical survey by the field staff of the A.P.H.A. in 1947. The county health department serves less than half of the county's population of nearly 100,000. Four cities of 10,000 or more, only one of which has more than 25,000 inhabitants, each has a part-time health officer.

Included is the long-range program adopted after the survey, listing 21 items and, in a corresponding column, the agencies that have accepted responsibility for each item. This list of agencies for the various items is in itself a text on local coöperation. The study is an outstanding example of the use of the survey technique for getting action as well as of community participation in community programs.

Available from Agricultural Extension Service, Ohio State University, Columbus.

OHIO LOOKS AT ITS PUBLIC HEALTH

There have been a number of recent evidences that public health in Ohio is having a rebirth. *Ohio CAN Have Better Public Health Service,* by the Ohio Committee on Public Health, may be cause or effect. At any rate, it is an excellent brief, yet detailed summary of what Ohio citizens need to do to bring their state's public health services up to a standard consonant with the state's wealth, population, and industrial and educational importance.

There are 10 conclusions that mince no words about the shortcomings of the State Health Department, particularly the serious lack of funds appropriated for its work. Its chief recommendations are for sufficient appropriations to carry on an adequate state program without federal funds for essential state services. These latter funds should be used largely for local health services.

The Ohio Public Health Committee, stimulated by the Rural Health Council, was organized early in 1948. It is made up of representatives of 12 organizations, medical, health, farm, labor, and civic. It has begun a second study that will concern itself with the administration and quality and efficiency of local health departments.

The report is succinct and forceful. The study is notable in that it used readily available basic data. It drew on

detailed material of previous studies, permitting its prompt completion at low cost.

UNIQUE CANCER EDUCATION

As briefly described in a previous issue of the *Journal* (July, 1948, p. 1017), the New York City Cancer Committee, for the past 7 years has sponsored annual contests for exhibits and posters in New York City high schools. The 1949 exhibit containing nearly 550 exhibits and posters was again shown in the Museum of Natural History. The exhibits, carefully prepared, were based on sound principles and reliable scientific information. Many of the posters were comparable to the best professionally prepared material and represented the individual expression of various types of talents.

There is no better way to disseminate health information that will "stick" for a lifetime than to stimulate young people to work on projects concerned with a particular problem. This New York City Cancer Contest is an excellent example of stimulating teachers and children to use their creative abilities in an interesting and worth while project. The value of "incidental" learning by relatives and friends is an additional asset.

Nor should the fact be overlooked that a goodly number of the participants through the interest developed in cancer and other health problems might become worthy recruits for the health field.

SHARING HOSPITAL NEWS

To pass on news about its member hospitals, the American Hospital Association in June began a two page monthly *News Service* to be distributed to all its members. It is designed to contain short news stories than can be used in local or state hospitals' journals. Among the items in Vol. 1, No. 1, is the announcement of a comprehensive five year *Cumulative Index of Current Hospital Literature* to be ready for subscribers early in 1950. American Hospital Association, 18 E. Division St., Chicago 10.

"ATTITUDES" AND DENTAL CARE

Following the modern psychological trend of taking account of basic attitudes and motivation in getting individual or mass action, a study of "Parental Attitudes and Dental Care for Children" has been made in selected rural areas of Louisiana. As one might expect, children whose parents were aware of the importance of dental care got more dental care than others. The study nevertheless is an illustration of a fertile field in health work, namely that "attitudes" as well as facilities have a good deal to do with health habits. The study was discussed at the recent meeting of the Southern Branch A.P.H.A. in Dallas. It was made by two members of Louisiana State University's Department of Rural Sociology and published with the coöperation of the Louisiana State Health Department, New Orleans, from which it is presumably available.

BREMERTON'S HEALTH COUNCIL DAY

The Kitsap County Community Health Council last April celebrated Washington State's first "Health Council Day." It invited leaders of the 10 community health councils in the state to Bremerton for a day of discussion and exchange of information. The Bremerton-Kitsap County Health Officer, Shirley Benham, M.D., spoke on the work and objectives of community health councils. Also explored was the question of organizing a Washington Association of Health Councils.

HOW TO GET SPEAKERS ON HEALTH

The Minneapolis Health Department, through its bureau of health information, has prepared a five page mimeographed list of topics for talks on health and the eight local agencies that provide speakers for the topics listed, including often films or other visual aids. This is a serv-

ice that might well be copied elsewhere. Minneapolis Health Department, 401 City Hall.

LAUGHING AND LEARNING

Doc Snork and Mrs. Snork and Maybelle and little Reginald, portrayed in a few pencil drawings, are sure to make the kids laugh. They decorate the "Doc Snork" letters which remind children about vaccination, about lice, about good nutritious meals, and all the other matters that health educators try to get over to children in one unique way or another. You may be sure the kids will take the letters home where "none of those pop and hot dog lunches for the little Snorks" will also have its effect.

The Division of Health, Department of Public Welfare, Dayton, Ohio, which puts out these letters, offers to share experience with other agencies that might wish to use a similar idea. The health educator, George W. Watson, says "Only by pooling resources can we ever hope to advance and since this little device has met with remarkable success here others might derive benefit from it also."

A FIRST DIRECTORY

The Illinois Public Health Association has recently published a directory of its more than 600 members, about three-quarters of whom are also A.P.H.A. members. Both job and home addresses as well as A.P.H.A. membership are indicated. This is believed to be the first directory to be published by a state or regional public health association. It has one serious omission; neither the I.P.H.A. officers nor a brief description of the organization are included. Hence if you want to congratulate the Association or see its directory, you'll have to find its officers and address elsewhere.

WHY PATIENTS LEAVE TUBERCULOSIS HOSPITALS

At the recent March annual meeting of the New York Tuberculosis and Health Association a study, based on nearly 2,000 discharged patients in four metropolitan tuberculosis hospitals, was released, analyzing the reasons why patients in tuberculosis hospitals leave against medical advice. Nearly half of those discharged alive left against medical advice. Two thirds of these "sign outs" were reported due to dissatisfaction with the institution. This is a study that should be in the hands not only of tuberculosis hospital administrators but also of case workers and others dealing with the family of the tuberculous patient. The report is the work of Godias J. Drolet, statistician of the Association, and his associate, Donald E. Porter, New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

MULTIPLE SCLEROSIS APPEAL

The National Multiple Sclerosis Society has published a very brief but effective appeal for funds for its work. It is a good piece of health education in helping the public to understand some of the implications of the disease and particularly the need for further research to increase the body of definitive knowledge about it. National Multiple Sclerosis Society, 2 East 103 St., New York 29.

MONTREAL'S HEALTH DISTRICTS

A recent *Health Bulletin* of the Montreal Department of Health (Vol. 35, No. 2, Mar.-Apr., 1949) is devoted to a description of Montreal's health districts, eight of which are now in existence and a ninth planned. Each will serve from 100,000 to 150,000 persons. The health centers "greatest claim to usefulness," according to the description, is that it constitutes "a small department of health which has abandoned the high altitudes of administration to mingle with the people."

There is also a historical note on

health districts in a large city which cites the East Harlem and Bellevue-Yorkville Districts in New York, the North End district of Boston, and the Eastern Health District of Baltimore, as forerunners of the present accepted district plan of administration.

It might be noted in passing that the districting of large cities into subcenters and the consolidation of small cities and counties or of several counties into one administrative unit are two sides of the same shield—namely dealing with units of population that can justify and support an adequate service and that are yet manageable, with administration close enough to the people not to become too routinized and formalized.

HOW GOES PIERRE THE PELICAN

The *Journal* of May, 1948 (p. 721) described briefly the Pierre the Pelican series of the Louisiana Society for Mental Health. The series is sent once a month for a year to the parents of a new-born baby, and is designed to help the parents in avoiding pitfalls in the early training, particularly of the first born. The first year's experience has now been evaluated and reported on in *Louisiana Mental Health Studies*, No. 1, November, 1948, under the direction of Loyd W. Rowland and a group of his students at the Tulane Graduate School of Social Work. There is a page and a half of text for the layman giving the major highlights and all tending to indicate that Pierre the Pelican families do a better job of handling the routine of child care than non-Pelican families. There is a much longer evaluation analysis for the professional—and parent who wishes to read.

The series has also been used in West Virginia through the coöperation of the West Virginia Bureau of Mental Hygiene and the Division of Vital Statistics. The Louisiana Society has prepared a brief report of West Virginia's method of distributing the Pelican pamphlets.

All this material is available from the Louisiana Society, 816 Hibernia Bldg., New Orleans 12.

A TUBERCULOSIS SOCIETY BULLETIN CONCENTRATES ON LOCAL HEALTH UNITS

It will be remembered that the National Tuberculosis Association has on more than one occasion passed resolutions that adequate organized local health services were indispensable to the most effective operation of local tuberculosis control programs. Its program development has found numerous ways of passing the intent of these resolutions on to state and local affiliates.

That the Massachusetts Tuberculosis and Health League is in full accord with its parent organization is indicated by the April issue of its organ, *The Massachusetts Health Journal.* This issue is devoted mainly to consideration of local health units as a means of bringing better public health to Massachusetts. It has a message from the Governor urging the union of towns, the report of Hugh R. Leavell, M.D., Chairman of the Technical Committee on Local Health Units of the Special Commission on Public Health, which outlines a plan for local health units in Massachusetts, articles by both Dr. Vlado A. Getting, the Health Commissioner, and Dr. Robert E. Archibald, Director of Local Health Administration, and by C. W. Kammeier, the Executive Director of the Massachusetts Tuberculosis and Health League. Nor are rural health problems neglected, for a solution such as is reported by the Nashoba Associated Boards of Health, is fully described. Although geared to the Massachusetts situation, the articles have a good deal of relevance for other states as well. Massachusetts Tuberculosis and Health League, 1148 Little Building. Boston 16.

TAKING RESOLUTIONS SERIOUSLY

The *Crusader* of the Wisconsin Anti-

tuberculosis Association has been giving tangible reality to the resolutions of its parent organization, the National Tuberculosis Association, that local and state health departments are indispensable to most effective tuberculosis control activities.

The March issue described the State Board of Health and some of its chief activities. The April issue was devoted to the work of local health departments. It included a map of the state showing the 71 counties districted into 37 proposed health units, 15 made up of single counties, and 22 of two, three, or five counties. The *Crusader* has a mailing list of about 20,000 Wisconsin citizens who have thus had "a sampler of what the state's official health agency is doing."

FACING ACCIDENT FIGURES FRANKLY

The Oregon State Health Department has studied its accident figures. It has published them, not in a handsome printing job with extensive statistical tables. Rather, it has used one page of its weekly *Health Bulletin* for an article entitled "1948 Accident Record Among Nation's Worst." The article reports that only 6 states had worse accidental death rates, that motor vehicle accidents were the most frequent, and that at least 50 per cent of the accidents could have been prevented. Included in bold type are a few simple safety measures recommended by the State Health Officer, Harold M. Erickson, M.D. Also in bold type is a summary of January, 1949, figures indicating a more favorable situation than the previous year. This type of treatment has its advantages—and its economies—over the more extensive handsomely produced report.

CANCER LEGISLATION IN STATES

Cancer News for February, 1949 (Vol. 3, No. 2), in "Thirty States Have Cancer Legislation" gives a brief history of state cancer legislation. The first was an item in the supply bill in New York in 1898, "for the medical department of the University of Buffalo for the equipment and maintenance of a laboratory to be devoted to an investigation into the causes, nature, mortality rate, and treatment of cancer, and the salaries and officials of the same, ten thousand dollars." Massachusetts followed in 1919, since when 28 other states, the District of Columbia, and Puerto Rico have made some official provision for the control of cancer. In 12 states these laws provide for some type of permanent cancer control program in the state health department, in some there is provision for such a program under the auspices of the state university. Five states make cancer a reportable disease by law, 21 others by health department regulation. *Cancer News* is published by the American Cancer Society, 4 Beaver St., New York 4.

A DRAMATIC DEMONSTRATION

The Shelby-Effingham Bicounty Health Department in Illinois is hardly more than a year old. But it had an opportunity to dramatize its value to the community following the St. Anthony's Hospital fire in Effingham in April. Not only were there 75 deaths but there was a general disruption of medical, obstetric, and surgical services within the area. Following requests for home nursing aid in child birth cases that had been scheduled for the destroyed hospital, the health department nursing services were put on an emergency basis. Within 24 hours three home deliveries had received health department nursing aid.

Out of this grew an interim plan of home nursing delivery service with three additional nurses employed by the county and a number of others put on to be paid on a fee basis. A state grant-in-aid has made this program possible. The news release distributed by the director of the health department, Fred O. Tonney, M.D., says, "This incident

gives us a new conception of what a local health department can mean to a community over and above the presently accepted routine services—a matter which deserves thoughtful consideration for the future planning of the national public health program."

SAFETY MATERIALS

The business of making the public, particularly the younger generation, safety conscious does not slacken its pace. The National Commission on Safety Education of the National Education Association has a quartet of recent publications. They are:

1948 Annual Report which includes a 1948 bibliography of the Commission's Safety publications, and their prices.

Highway Safety: A Challenge to Youth—Designed to help teachers of upper elementary grade integrate traffic safety with social studies program, 30¢.

Minimum Standards for School Buses, 1948 Revised Edition and Standards, 35 cents, and *Training Programs for School Bus Drivers,* 30 cents. Both Bulletins were developed by the October, 1948, National Conference on School Transportation at which 44 state departments of education were represented. For all three publications there is a reduction up to one-third for quantity orders. National Education Association, 1201 Sixteenth St., N.W., Washington 6.

Also out is the *Program Package for Home Safety* of the National Safety Council's Home Safety Conference. This contains instructions and a variety of material for the organization of community home safety programs. The kit is $1, but if ordered with two other dollar items, annual subscription to the *Newsletter* and another to the *Home Safety Review,* all three can be had for $2. National Safety Council, 20 N. Wacker Drive, Chicago 6.

HOW ACCIDENTS HAPPEN

A detailed, interesting, and revealing analysis of home accidental injuries and deaths in Atlanta during 1948 was written by Charles Gaddis of the Atlanta Chapter of American Red Cross. He had the help of Atlanta's hospitals and The Bureau of Vital Statistics in its preparation. Among its significant findings is, "Children up to four years of age were the most frequently injured, suffering more falls than any other group."

The study is to be found in *Home Safety Review,* Apr.-May, 1949, published by the National Safety Council, 20 N. Wacker Drive, Chicago 6.

UTAH'S MERIT SYSTEM

The habit of reporting on Merit Systems grows. The report of Utah's Merit System for the year ending June 30, 1948, with illustrations and simple language, tells of the advantages of the Merit System and implies that all workers should be under it instead of only the one-fifth of the nearly 5,000 total state employees who are in the four departments covered—health, public welfare, employment security, and highway patrol. Merit System Council, 428 Atlas Bldg., Salt Lake City.

WORTH ACQUIRING

My Story is a 38 page magazine-like publication that looks like one of the popular women's magazines. Its several love stories of the confession type, as well as the advertisements, cross word puzzles and other facilities, have a VD message woven into them. And, of course, they all have a happy ending. It is intended particularly for widespread distribution in industry, clubs, and lounging rooms.

The magazine was prepared in coöperation with the U. S. Public Health Service by Health Publications Institute, 216 North Dawson St., Raleigh, N. C., from whom it is available at $25 per 100; $200 per 1,000, with an additional 10 and 25 per cent discount respectively for 5.000 or 10,000 copies.

The Nurse and Planned Parenthood, written by four nurses is a brief discussion of the factors in family planning. The aims and importance of Planned Parenthood are intepreted for the nurse to aid her in taking her full share of responsibility in carrying out the program under appropriate medical supervision. Planned Parenthood Federation of America, 501 Madison Avenue, New York 22, 10 cents or $6 per 100.

Boys Want to Know is the fourth in a series of pamphlets dealing with questions and problems of boys and girls of various ages. Published by the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16, to whom queries should be addressed.

You Will Want to Know is a brief 8 page summary, with pictures and in color, telling of the activities of the 63 year old Public Health Laboratory of the Kansas State Board of Health. It is geared to the theme "Why We Need a Building." Kansas State Board of Health, Topeka.

Discipline is the newest in the Parent-Teacher Series being edited by Ruth Cunningham for the Columbia University Teacher's College Bureau of Publications. Its subtitle might well be "Comfortable Discipline." It has many hints for maintaining discipline without at the same time creating mental hygiene problems, 60 cents.

ANNUAL REPORTS

The 1947–48 report of the Richmond, Virginia, Health Department is called "The Future is Now." It is an excellent illustration of making what are often dull facts come alive for the average reader. Simple line drawings, sometimes a bit humorous, a minimum of wordage and some real accomplishments to report, and a reminder of the need for citizen support—these are the elements in a simple job, expertly done. The report, incidentally, was introduced to a public outside the state at the recent meeting of the Southern Branch of the A.P.H.A.

Kay County's Health: Then and Now is a very short annual report of this Oklahoma County's health service based on a comparison between two 4 year periods 1936–1940 and 1944–1948. Effective use is made of graphic material to tell the story and sandwich in a bit of health education besides.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Fetal and Neonatal Death—*Revised and brought completely up to date, with new sections on the Rh factor and the effect of maternal German measles on the fetus*—*By Edith L. Potter, M.D., and Fred L. Adair, M.D. Chicago: University of Chicago Press,* 1949. 167 pp. Price, $3.75.

This edition like the first, reviews the present status of knowledge of development and organ structure of the normal fetus and new-born infant, the technique and scope of the post-mortem examination for the fetus and new-born infant, the principal causes of fetal and neonatal death, the special pathology of the various systems of the body in the fetus and new-born, and statistical data.

The most outstanding developments in knowledge during the nine years spanned between the two editions—the discovery of the Rh factor and its relationship to erythroblastosis in the fetus and new-born infant, and the gradual accumulation of evidence that virus infections occurring during the first few months of pregnancy may cause death or malformation of the embryo, are covered in this new edition.

During the same period there has been a significant decrease in fetal and neonatal mortality. This edition calls attention to the fact that between 1937 and 1945 the combined rates for stillbirths and neonatal deaths per 1,000 live births in the United States have dropped from 66 to 48, and that in certain obstetric hospitals the mortality today is below the hypothetical irreducible minimum of a few years ago. The statistical data in the last chapter give corroborating evidence of this fact as well as other interesting and significant data from the Chicago Lying-In Hospital. A discussion of maternal mortality not included in the first edition is incorporated in this edition, as is a discussion of the close interrelationship of the problems of maternal, fetal, and neonatal mortality. ELLA OPPENHEIMER

The Shame of the States—*By Albert Deutsch. New York: Harcourt, Brace,* 1948. 188 pp. Price, $3.00.

Deutsch attempts to rouse the conscience of the American people to the shocking conditions present in most of their state mental hospitals. He describes the overcrowding, understaffing, inadequate budgetary allotments, lack of adequate treatment facilities, etc., that exist in state mental hospitals throughout the country.

The history of the development of the state mental hospital is outlined, and responsibility for its present sad plight is attributed to the apathetic attitude of the average citizen. Deutsch has faith in the conscience of the American people and believes that, the facts being known, most Americans will press for needed changes and willingly tax themselves sufficiently, to eradicate this "Shame of the States."

Certainly, changes in the care of the mentally ill are long overdue. *Every general hospital* must enlarge its local function of giving comprehensive medical care by adding an acute *psychiatric service* with related outpatient clinic for the diagnosis and early treatment of behavior and maladjustment problems of adults and children. One wishes Deutsch had included and stressed this most important recommendation as a part of his plan to improve the care of the mentally ill in America.

This book should be required reading in our schools and colleges. Also, every public spirited legislator would more clearly see the urgent need to direct public funds into the field of preventive

mental health—if he took time to learn the shocking facts, briefly outlined in this small, well written volume.

S. BERNARD WORTIS

School Health Education—*By Delbert Oberteuffer. New York: Harper,* 1949. 393 pp. Price, $3.25.

School Health Education covers very adequately and systematically the current situation and problems in the school health field. It brings together under one cover a review of the various fundamental principles, beliefs, and trends concerning school health work; specific suggestions on programs and activities; and references to the facilities and resources available. It is a well organized, carefully thought through summary of school health problems and the various ways of approaching them, fitting them into their logical relationship to public health education and the practice of medicine.

The sections on classroom teaching, course organization and content and evaluation explain school health education in the light of basic principles of good education. These specific suggestions are based on the needs and interests of individual children, and are selected to affect the behavior and attitudes of the individual and to foster his well rounded and balanced growth. The material is fitted into its proper place in the curriculum, and is particularly helpful in the explanation and illustration of the integrated health teaching program and experience.

The business of health appraisal in schools is carefully outlined and should help to clarify the many questions raised with regard to what functions should be developed—how, why, and by whom. Specific programs relating to communicable disease control, mental hygiene, nutrition, dental health, vision, hearing, environment, physical education, the special problems of the handicapped, and emergency care are all clearly reviewed. Recognition of the importance of professional preparation is given but is reviewed in less detail; however, the many references are well selected and organized.

One full chapter is given over to the important interrelationships of school and community personnel. Without clarification of these administrative and personnel lines of endeavor and without coöperation action, no school health program can function adequately.

The objectives of school health education are clearly presented in this book and the outlines and suggestions will be of value to all students of school health in teaching, medical, nursing, or other related professional fields. Whether or not one agrees with the specifics within the book, the reader will obtain a splendid overall point of view of the purposes of school health programs and the various procedures required to fulfil them. This is done in a simple, clear manner with good definitions of both education and public health terms. Dr. Oberteuffer is a clear thinker and has prepared a sound reference book which makes a real contribution to the literature in the field.

GEORGE M. WHEATLEY

How to Tell Your Child About Sex—*Public Affairs Pamphlet No. 149 —By James L. Hymes, Jr. New York: Public Affairs Committee, Inc.,* 1949. 31 pp. Price, $0.20.

Mr. Hymes is Professor of Education and Coordinator of Early Childhood Education at the State Teachers College, New Paltz, N. Y. His article maintains the high standards that have characterized Public Affairs Committee, Inc., publications.

Among the many pamphlets intended to be of assistance to parents in answering children's questions about reproduction, this may be recommended as one of the best. The printed word ordinarily is not an effective means of communicating through the barriers of

already established attitudes that characterize parents' feelings about sex unless the author uses suitable devices for establishing good feeling and reassurance about the subject and avoids creating further emotional difficulties. This is not easy and the special value of this publication lies in the author's success in this respect. In addition to providing simple suggestions for answering children's questions, the pamphlet makes it clear that the important part of the child's "sex education" is derived from parental attitudes, feelings, and conduct. This reviewer feels satisfied with all the suggested answers except the explanation of menstruation. In essence it is suggested that to the child a satisfying explanation is that some accumulated blood containing food for a baby that did not materialize is discharged each month. Aside from the question of its accuracy, this explanation might harbor unsuspected meanings for a child. ADOLPH WEINZIRL

Mayo Clinic Diet Manual—*By the Committee on Dietetics of the Mayo Clinic. Philadelphia: Saunders,* 1949. 329 pp. Price, $4.00.

The tables and procedures presented in this book give a wide range of information which reflects current practices in therapeutic diets. The material was developed for use as well as for teaching purposes and represents "convergent trends but not unanimity of opinion" of the physicians of the Mayo Clinic.

The format, alternate blank pages for notes, should greatly enhance usefulness. Each diet is presented in a single table. These simple and legible tables should facilitate rapid referral and ready reference.

It is unfortunate that the book was in press when the 1948 revision of *Recommended Dietary Allowances* of the Food and Nutrition Board of the National Research Council was published, because all the diets are calculated to conform strictly to the 1945 recommended dietary allowances, and wherever there occurs a divergence from these allowances, the deviation is plainly stated. The authors feel that for practical purposes the dietary allowances were changed so little that this does not create a serious defect.

Many useful data are included: among them are tables of food high in cholesterol, sodium, oxalic acid, iron and calcium, age-height-weight tables, as well as a food nomogram. There is a detailed table of contents, but no index.

This book would be a valuable addition to the working library of dietitians, physicians, nutritionists, and nurses.

MARGARET C. MOORE

Safeguarding Motherhood—*By Sol T. DeLee, M.D. Philadelphia: Lippincott,* 1949. 123 pp. Price, $2.00.

Safeguarding Motherhood is a study in contradiction which, to say the least, would be confusing to the expectant mother for whom the book is intended. He tells the mother, "The prospective mother should take cheerfulness as her motto. Cheerfulness will work wonders for her, her baby, and her home. She should keep in mind the over-flowing happiness that a delightful, lively, rosy-cheeked baby will bring in a few months' time." But how can she be cheerful when the following pages are filled with such gloomy topics as nausea, vomiting, flatulence, cramps, piles, edema, mental unrest, chills and fever, toxemia, abortion, placenta previa, heart disease, thyroid disturbances and most of the other pathology known to medicine?

Dr. DeLee advises the mother to have confidence in herself, but the fears which are instilled can only make her cling more frantically to her doctor. He puts great stress upon the importance of the father-to-be, but then would ban him as a "visitor" from his wife during the latter stages of her labor.

He describes labor as "a perfectly natural function" and declares "It has been shown repeatedly that the well informed patient adopts the attitude that labor is not a horrifying experience but Nature's way of terminating the pregnancy. In the absence of fear this work can proceed more naturally and efficiently and with far less discomfort." Later on Dr. DeLee states that "Delivery is a surgical procedure."

Perhaps the central idea of the book is best epitomized by Dr. DeLee's selection of words. Most young women go to their doctor on the first prenatal visit hoping they are pregnant. But says DeLee, "In most cases the first prenatal visit paid to a doctor is one during which the patient expects to confirm her *suspicion* of pregnancy."

There is a crying need for a book on maternity and the relationship of the coming of a baby to the family, the doctor, nurse, hospital, and the community that emphasizes the importance of health, physical, mental and family health, and shows the way to achieve it.

HAZEL CORBIN

Social Medicine: Its Derivations and Objectives—*Edited by Iago Galdston, M.D. New York: Commonwealth Fund,* 1949. 293 pp. Price, $2.75.

Many of the 25 essays collected here are exceedingly interesting, although they are rather uneven and do not form an entirely consistent pattern. Subject matter varies from detailed contributions on nutrition to lofty philosophic discussion of "The World Scene."

Several lines of thought, however, thread through most of the papers: medicine must more and more consider the entire personality of the patient, especially his emotional and psychological life and his familial, occupational, and general social setting—indeed, his whole culture; more scientific studies are needed of all the factors, social and individual, that affect the health of a living population in its cultural pattern; preventive medicine should be the daily task of every physician—who will "spend his time keeping the fit fit rather than trying to make the unfit fit" (Lord Horder): physicians should be more active in efforts to improve such general conditions affecting health as nutrition, housing, family and social relationships; medical education must better prepare doctors to understand and alter emotional and social influences on health.

Several enthusiasts urge the naïve belief that social science, fully applied, can resolve the world's ills. Indeed, the book's major defect is that little attention is given to practical means for putting its admirable ideas into effect. Most would appear to require large-scale governmental action, yet this seems greatly feared by many of the authors.

DEAN A. CLARK

The Venereal Diseases—*By James Marshall. (2nd ed.) New York: Macmillan,* 1948. 369 pp. Price, $5.50.

This brief manual, described as "For Practitioners and Students" is chiefly interesting to Americans for the picture it provides of the British attitude toward developments of recent years in the therapy of the venereal diseases. The author is the Director of the Venereal Diseases Clinic of the Royal Northern Hospital in London, and has been Advisor in Venereology to the British War Office.

Of greatest interest is Dr. Marshall's advice that early syphilis be treated with daily injections of an arsenoxide over a 10 day period, in supplement to 2.4 million units of penicillin over a period of 7½ days. This distrust of penicillin alone in early syphilis is typical of the present British medical point of view, and depends, apparently, upon the experience in the British Army, where the failure rate with penicillin alone was held to be higher than in this country or the U. S. Army in Europe.

In various types of late syphilis, in pregnancy complicated by syphilis, and even in congenital syphilis, recommendations for the use of penicillin are qualified by the advice to supplement such therapy with the arsenicals and bismuth.

The author endorses the effectiveness of penicillin in gonorrhea, though he remains dubious concerning the effectiveness of the delayed absorption variety. There is a considerable discussion of the complications of this disease, and here the divergence from American practices is most evident. In stress upon use of sulfonamides, the passage of the urethral sound as a test of cure, potassium permanganate douches in salpingitis, and reliance upon the gonococcal complement-fixation test, the author presents views sharply different from those drawn in recent years on this side of the Atlantic.

Save as a source book for information on current British therapeutic practices in venereal disease, this manual would have little value to an American clinician or public health man. JAMES H. LADE

Rheumatic Fever: Nursing Care in Pictures—*By Sabra S. Sadler. Philadelphia: Lippincott,* 1949. 151 pp. Price, $3.50.

Occasionally a thoroughly practical, comprehensive, authoritative, clear, and simple set of instructions for nursing a special disease in the home appears. Mrs. Sadler has prepared such instructions in this book—practical even to the point of being bound to lie flat and cleanable with a damp cloth!

A description of rheumatic fever—its causes so far as we know them now, its symptoms, course and prognosis—precedes the nursing instructions, thus providing parents with an understanding of the reasons for giving care in a certain way. The book is written for parents, illustrated for parents, and contains so many procedures common to long-term sickness situations in the home that nurses will find it exceedingly useful for teaching purposes in a variety of conditions. The book ends on the cheerful note "Returning to Normal," and the final picture shows the recovered child keeping in touch with the doctor through periodic visits to his office.

This is altogether a highly satisfactory book to be recommended unreservedly to everyone having home contacts with rheumatic fever. Would there could be similar tools for the home care of such diseases as cancer, diabetes, and nephritis!

DOROTHY DEMING, R.N.

Maternity in Great Britain.—*Joint Committee of the Royal College of Obstetricians and Gynecologists, and the Population Investigation Committee. New York: Oxford University Press,* 1949. 252 pp. Price, $4.00.

This report of a survey of social and economic aspects of pregnancy and childbirth is probably more complete than any survey on this subject ever made before. It was undertaken and completed by the British Royal College of Obstetricians and Gynecologists, and the Population Investigation Committee, before the initiation of the new National Health Service. Major objectives were to study the extent to which existing maternity services, public and private, met the needs and desires of mothers, and to determine the costs of such services. Clinical aspects of maternity, although referred to, were secondary to the study of social and economic problems.

The study was based on personal interviews, eight weeks postpartum, by health visitors (most nearly comparable to our public health nurses), with 13,687 mothers delivered in England, Scotland, and Wales, during a given week in 1946. Interviews were satisfactorily completed for between 80 and 90 per cent of all deliveries occurring during this week. This was not too difficult, since 96 per

cent of the mothers in England receive postpartum visits by the health visitors.

The following are samples of the interesting data found in this study:

In 65 per cent of these homes, the number of occupants is greater than the number of rooms.

The stillbirth rate for the most prosperous family group was 24.0, and for the least prosperous group, 40.3.

The neonatal death rates for these two classes were, respectively, 18.9 and 30.1.

72 per cent of the mothers received antenatal care at the local public maternity centers, and visited the clinics on the average of eight times during the pregnancy.

Undesirable premises for many clinics, lack of appointment systems, and variations in the skills and interests of the attending physicians are described.

54 per cent of the deliveries occurred in hospitals, but priority for hospital care was not always given to those most in need of such services.

In spite of an acute shortage of beds, the hospital stay in England averaged 13 days, and in Scotland 10 days.

The main complaint of the mothers interviewed was, "No attempt was made to relieve labor pains."

Only 52 per cent of those delivered in hospitals were given any pain relief.

The survey reported that, "In all aspects of maternity care, well-to-do mothers get better attention than those who are poor." Factors underlying these social inequalities are discussed. Special mention is made of prematurity, infant feeding, problems of working mothers, and household help.

The study should have been extremely valuable to all of those in Great Britain concerned with development of the expanded National Health Service Act which became effective two years later. A similar study in the United States would undoubtedly result in producing a wealth of useful data in this important field. EDWIN F. DAILY

Social Surveys—*A Guide for Use in Local Planning. New York: Council of Jewish Federations and Welfare Funds,* 1949. 29 pp. Price, $.50.

The Council of Jewish Federations and Welfare Funds prepared this excellent short guide for a staff engaged in field surveys. It will be useful to communities considering such ventures. The approach to surveys as tools rather than as panaceas is well presented.

ROSCOE P. KANDLE

Trace Elements in Foods—*By G. W. Monier-Williams. New York: Wiley,* 1949. 511 pp. Price, $6.00.

From the title of this book one might expect to find merely extensive tables showing the distribution of trace elements in foods. On the contrary, it covers in a very interesting and complete manner the biochemistry, the nutritional significance, and the toxicology of over 30 trace elements. Of this group the author points out that six are essential for animal life and three more for plant life. A few others, such as selenium, occur spasmodically in plants and a good many gain access to food from industrial processing.

Each chapter is very complete with a selected group of important references. Much space (perhaps too much for many readers) is given to analytical methods for each of the elements. Emphasis is given to the public health aspects of many of the elements, especially copper. Less attention is given to selenium, probably because the problem is not so serious in England as it is in the United States.

The book is very valuable to workers in many fields and certainly everyone interested in public health should have the book available. As one would expect when a single author attempts to cover as extensive a field as trace elements, a few significant references are omitted and certain insignificant material is included. C. A. ELVEHJEM

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Females and Infants Had the Best of It—If the death rate of 1940 had held in 1947, then 267,000 more people would have died than departed this world that year. All the leading causes of death, except cancer, played a part in the life saving. And the cancer increase was under 3 per cent, which may simply reflect better reporting. This study is something you will not want to miss.

ANON. The Fruits of Life Conservation. Stat. Bull. (Met. Life Ins. Co.) 30, 5:1 (May), 1949.

Broader-View Department—"Curiosity is often considered a bothersome trait which has got us into a great deal of trouble from the days of the Garden of Eden to Those of Hiroshima." "Against unfettered scientific curiosity there is now strong opposition." These two assertions should make you look up from your own little preoccupations long enough to read the whole paper.

BRONK, D. W. Science and Humanity. Science 109, 2837:477 (May 13), 1949.

Kippers, Pilchards, Swedes, *et al.*—What will men and women eat in 1960? asks this British researcher. Nobody knows because nobody has tried to find out! is his answer to his own question. Then he tells how he got some advance information by asking young workers, still in their teens, what they liked. Isn't there a nubbin of an idea there that may be worth importing?

CLARK, F. LE G. Food Ways of the Young Worker (two parts). M. Officer 81, 23:235 (June 4), 1949.

Cholesterol: Scientific Enigma—Does age 60 seem not too far away? Then this paper will tell you what you had better eat. Perhaps you will want to pass along the word to someone else nearer than you to old age. Mostly this paper is about calcium, iron, and protein, with a warning about cholesterol.

CRAMPTON, C. W. Dietary Aids and Dangers for the Aging. Pub. Health Nurs. 41, 6:320 (June), 1949.

Ominous Record—If you want to know where polio was most prevalent last year, here is the information. Both morbidity and mortality rates were highest in years. The west north central part of the country was hit hardest.

DAUER, C. C. Prevalence of Poliomyelitis in 1948. Pub. Health Rep. 64, 23:733 (June 10), 1949.

Despite Insufficient Funds and Nonexistent Personnel—Mental hygiene begins to take its place with other functions of a comprehensive health program in this Maryland County. The clinics will serve as centers of inservice training in the principles of mental health for *all* the departmental staffers.

DAVENS, E., AND LEMKAU, P. Birth of a Community Mental Health Clinic. Pub. Health Rep. 64, 21:657 (May 27), 1949.

News Item—Two manuals, one for public health nurses and the other for health officers, are in course of preparation by the National Cancer Institute and the New York State Department of Health. Watch for them! Lay pamphlets will soon be available too.

DEIBERT, A. V., *et al.* Professional Education for Cancer Control (and four related papers). Pub. Health Rep. 64, 24:749 (June 17), 1949.

Did You Know?—To sanitize means, "to apply measures to food handling equipment, eating and drinking

utensils, and the like, so as to reduce the bacterial count to safe levels . . ." I still think it a clumsy word.

DU BOIS, A. S. Meaning of the word "Sanitization." Mod. Sanitation. 1, 2:31 (June), 1949.

Anent Mental Impenetrability—Before and after a county-wide chest x-ray project, people were asked to tell what they knew about tuberculosis. As an educational medium the x-ray activity proved to be small potatoes. Some—mostly the younger ones—learned quite a little but the overall educational results were slim.

GALIHER, C. B., AND WRIGHT, J. E. What Does a Roentgenographic Survey Teach the Public? Am. Rev. Tuberc. 59, 5:494 (May), 1949.

It Can Be Done—In this case finding project every syphilis patient named at least one contact, most named two, one named eleven. Altogether 144 new cases were brought to light in a season's effort by three investigators.

GRAY, A. L., *et al.* Syphilis Contact Investigation in a Rural County in Mississippi. J. Ven. Dis. Inform. 30, 6:165 (June), 1949.

Noise vs. Hearing—Will noise drive you crazy? At least it menaces your health and destroys efficiency, says this subcommittee. It is a health hazard that no longer should be allowed to lie dormant, they insist.

GROVE, W. E. Will Noise Damage One's Hearing? J.A.M.A. 140, 8:674 (June 25), 1949.

From Aretaeus to Waksmann—Prize essays are frequently prize bores but this one isn't. Just to follow this (then) fourth-year-medical-student as she circumnavigates the entire sphere of preventive medicine, in six pages, is to be a witness to an epoch-making jet-plane flight.

MANNING, M. D. Preventive Medicine. New England J. Med. 240, 26:1047 (June 30), 1949.

Are These Your Questions, Too?—"Most of (the visitors') questions centered around the community relations of the (mental health) clinic—what agencies are worked with directly, both on a referral and a consultative basis; what were the extramural activities; what were the mechanisms of cooperation with the community agencies; . . . how can the interest and support of the community and local agencies be fostered?" Answers are given.

ROSS, M. Pilot Mental Health Clinic. Pub. Health Rep. 64, 25:799 (June 24), 1949.

Nation-wide Eradication Is Possible—Proof is here, if you need it, that community-wide vaccination of dogs is essential to canine rabies control: without it the other measures, no matter how strictly enforced, won't do the trick. There is a lot more to this paper about the Rabies Control Branch, V.P.H. Division.

STEELE, J. H., AND TIERKEL, E. S. Rabies Problems and Control. Pub. Health Rep. 64, 25:785 (June 24), 1949.

Neither by Itself Alone—Full-time, rural health services hold no threat to village V.N.S.'s. Each should strengthen the services of the other—in five ways that are discussed.

WINSLOW, A. R., AND WINSLOW, C.-E. A. District Health Unit and Voluntary Nursing Agency. Pub. Health Nurs. 41, 6:315 (June), 1949.

"Not a Cause for Complacency"—Whatever role diphtheria immunization may have played originally in reducing morbidity, it has precious little effect upon the immunity status of the present adult population, say these researchers. The current high percentage of Schick-positives among young men in the Navy is—see quotes above.

WORCESTER, J., AND CHEEVER, F. S. The Schick Status of 18,000 Young Male Adults. New England J. Med. 240, 24:954 (June 16), 1949.

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Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCES IN INTERNAL MEDICINE. Vol. 3. William Dock and I. Snapper. New York: Interscience, 1949. 444 pp. Price, $8.50.

AMERICAN EDUCATION AND INTERNATIONAL TENSIONS. Educational Policies Commission. Washington: National Education Association of the United States. 54 pp. Price, $.25.

BEFORE YOU MARRY. Sylvanus M. Duvall. New York: Association Press, 1949. 171 pp. Price, $2.50.

ECONOMIC AND SOCIAL COUNCIL COMMISSION ON NARCOTIC DRUGS. Summary of Annual Reports of Governments for 1946. United Nations. New York: Columbia University Press, 1948. 112 pp. Price, $1.00.

EDUCATION ASSOCIATIONS AND DIRECTORIES. Washington: Gov. Ptg. Office, 1949. 57 pp. Price, $.15.

ESSENTIALS OF RURAL WELFARE. A Publication of the Food and Agriculture Organization of the United Nations. New York: Columbia University Press, 1949. 43 pp. Price, $.50.

FAMILY IN A DEMOCRATIC SOCIETY, THE. Anniversary Papers of the Community Service Society of New York. New York: Columbia University Press, 1949. 284 pp. Price, $3.75.

HOOKWORM DISEASE IN SZECHWAN PROVINCE, WEST CHINA, STUDIES ON. K. Chang and Co-Workers. Baltimore: Johns Hopkins Press, 1949. 147 pp. Price, $3.00.

INSTITUTE D'URBANISME (TOWN PLANNING) 1948–1949. 2 Vol. Paris, France: Universite De Paris.

INSTRUCTIONAL PLAN FOR BASIC TUBERCULOSIS NURSING. New York: National League of Nursing Education, 1949. 58 pp. Price, $1.00.

KINESIOLOGY OF CORRECTIVE EXERCISE (2nd ed. rev.). Gertrude Hawley. Philadelphia: Lea & Febiger, 1949. 193 pp. 107 illus. Price, $3.75.

MARRIAGE. Robert A. Harper. New York: Appleton Century Crofts, 1949. 295 pp. Price, $2.75.

MEDICAL ETYMOLOGY. O. H. Perry Pepper. Philadelphia: Saunders, 1949. 263 pp. Price, $5.50.

NEUROLOGY. Roy E. Grinker and Paul C. Bucy (4th ed.). Springfield, Ill.: Thomas. 1949. 1145 pp. 416 illus. Price, $12.50.

OBESITY. Edward H. Rynearson and Clifford F. Gastineau. Springfield, Ill.: Thomas, 1949. 134 pp. Price, $3.50.

POLIO CAN BE CONQUERED. Alton L. Blakeslee. New York: Public Affairs Pamphlet No. 150, 1949. 31 pp. Price, $.20.

REHABILITATION OF THE TUBERCULOUS. H. A. Pattison (3rd ed.). Livingston, Columbia Co., N. Y.: Livingston Press, 1949. 239 pp. Price, $3.75.

RURAL WELFARE SERVICES. Benson J. Landis. New York: Columbia University Press, 1949. 186 pp. Price, $3.00.

SANITARY CODE OF THE ULSTER COUNTY, N. Y., HEALTH DISTRICT. Kingston, N. Y.: Ulster County Health Department, 1949. 40 pp. Price, $1.00.

SKIN PROBLEM FACING YOUNG MEN AND WOMEN, THE. Herbert Lawrence. San Francisco, Calif.: Timely Publications, 1948. 70 pp. Price, $1.50.

SUGAR. ITS PRODUCTION, TECHNOLOGY AND USES. Andrew Van Hook. New York: Ronald Press, 1949. 151 pp. Price, $3.00.

THESE ARE YOUR CHILDREN. Gladys Gardner Jenkins, Helen Shacter and William W. Bauer. Chicago: Scott, Foresman and Co., 1949. 192 pp. 200 illus. Price, $3.50.

TOXIC EYE HAZARDS. A Manual Prepared by the Joint Committee on Industrial Ophthalmology of the A.M.A. and the American Academy of Ophthalmology and Otolaryngology. New York: National Society for the Prevention of Blindness, 1949. 101 pp. Price, $1.00.

REPORTS RECEIVED

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BENEFITS OF GROUP PRACTICE. The Kingsley Roberts Memorial Lectures: 1948. Alan Gregg, George Baehr and C. Rufus Rorem. New York: Medical Administration Service, 1949. 40 pp.

CENTRAL MINING-RAND MINES GROUP. Health Department Report for the Year 1948. Johannesburg, So. Africa: Department of Health. 17 pp.

ERIE COUNTY DEPARTMENT OF HEALTH. 1948.

Buffalo, N. Y.: Erie County Health Department, Office of Health Education. 88 pp.

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HOW HAWAII FIGHTS TUBERCULOSIS. REPORT FOR THE YEAR APRIL 1, 1948–MARCH 31, 1949. Honolulu: Tuberculosis Association of the Territory of Hawaii. 13 pp.

INDUSTRIAL HYGIENE PROBLEMS IN BOLIVIA, PERU AND CHILE. Public Health Bulletin No. 301. J. J. Bloomfield. Washington: Gov. Ptg. Office, 1948. 139 pp. Price, $.40.

JACME D'AGRAMONT AND THE FIRST OF THE PLAGUE TRACTATES. Regimen of Protection Against Epidemics or Pestilence and Mortality, 1348. Translated into English by M. L. Duran-Reynals and C.-E. A. Winslow. New Haven, Conn.: Yale University School of Medicine, Historical Library, 1949. 89 pp.

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LIFE INSURANCE MEDICAL RESEARCH FUND. FOURTH ANNUAL REPORT 1948. New York: Life Insurance Medical Research Fund. 89 pp.

MORTALITY STUDY OF APPLICANTS FOR INSURANCE GIVEN A GLUCOSE TOLERANCE TEST. Albert O. Jimenis, Herbert H. Marks, Rexford W. Finegan, and Norman R. Blatherwick. Newark, N. J.: Association of Life Insurance Medical Directors of America, 1948. 45 pp.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS. 11th Annual Report 1948. New York. N.F.I.P. 94 pp.

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PEORIA MUNICIPAL TUBERCULOSIS SANITARIUM. ANNUAL REPORT 1948. Peoria, Ill.: P.M.T.S. 17 pp.

PROPOSED SANITARY CODE. Part III of a Study of Sanitation Services. Louisville and Jefferson County Board of Health, September-October, 1948. New York: A.P.H.A., 1949. Price, $1.00.

PUBLIC HEALTH FOR PHILADELPHIA'S COMMUNITIES. A Summary Report of a Study by The American Public Health Association. Philadelphia, Pa.: Health and Welfare Council, 1949. 115 pp.

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Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

CONCERN for the health of the industrial worker is no longer a matter merely of sentiment or humanitarianism. It has become a vital necessity in the calculations of any industrialized community. The relations of occupation and health have today been extended so that these include not alone patent disease states but all factors that have a bearing on the maintenance of industrial health.

PSYCHOMETRY AND THE PREVENTION OF OCCUPATIONAL ACCIDENTS

Bonnardel reports on the use of psychometric tests to determine accident prone workers.[1] In a previous communication he had pointed out the significance of a "concrete intelligence" factor in the occurrence of accidents among workers. The psychometric tests on which the present results are based were made when the workers were hired, and thus before accidents had taken place. Bonnardel believes that unquestionable importance must be attributed to such tests in any program designed to discover in advance a good proportion of those workers who are more prone to accidents.

The observations upon which these conclusions are based are as follows: In one group of workers who had three or more accidents in the course of 2½ years, 41 per cent of the work days lost (381 out of 934) were due to workers who had been classed in the lowest decile at the time of the preëmployment psychometric examination. The percentage of work days lost for persons in this group was six times higher than in the whole working population.

Out of 153 workers who had accidents during the first 6 months of their employment, 39 (25 per cent) had been classed in the lowest decile at the psychometric test.

Finally, Bonnardel reports the case of a group of North African workers employed in a foundry who had accidents during a 3 month period. Here the proportion between the number of accidents and the number of workers, for the different groups derived from the psychometric tests, ranged progressively from 14.4 per cent for the lowest group to 2.5 per cent for the highest groups.

SUPERVISION OF EMPLOYED MINORS IN STOCKHOLM

This paper presents results obtained from physical examinations of 1,477 employed minors in Stockholm.[2] These workers ranged from 13 to 18 years of age. The authors report that in the past 40 to 45 years the weight of workers in this group has increased by 10 to 15 kg. and their height by 10 to 15 cm. About 13 per cent of the group examined were found to have postural defects that required orthopedic treatment. Anomalies of refraction were found in some 7 per cent. The authors stress the great importance of finding and correcting refractive errors as a means of accident prevention. Hearing defects and dermatological findings were rare; and approximately 1 per cent were found to be suffering from cardiac conditions. Dental caries was present in almost everyone examined. In conclusion the authors stress the need for examinations oftener than once a year. The follow-up could be performed by a public health nurse.

SILICOSIS AMONG FERRO-SILICON AND FERRO-CHROMIUM WORKERS

Broch investigated the occurrence of

silicosis among workers in a plant where ferro-silicon was fused with ferro-chromium.[3] A considerable number of workers with silicosis was found. After 16 to 19 years of employment in the ferro-silicon furnace house, about half of 21 workers had definite silicosis. One worker who had worked for seven years at charging the ferro-silicon furnaces had silicosis, stage I. Broch points out that the workers who charge the ferro-silicon furnaces are especially exposed. Chemical analysis of dust from various spots in the ferro-silicon furnace house showed a silica content ranging from 48 per cent to more than 80 per cent. X-ray examination of the dust indicated that amorphous silica was the cause of silicosis. Investigations among the ferro-chromium workers showed no silicosis in those who had worked 10 to 13 years. Further studies are being made to substantiate these findings.

SANITARY DRAWBACKS IN SPRAY PAINTING AND PROPHYLAXIS

By means of a questionnaire, Erkkilä collected information from 210 workers employed in spray painting (175 men and 35 women) on the dangers to health in this type of work and the steps taken to prevent such dangers.[4] Almost all the workers reported some symptoms. Only 13 workers (6.2 per cent) reported no symptoms. While 157 (74.8 per cent) felt that the work was detrimental to health, 26 thought it quite safe. Twenty-seven workers were undecided on this point.

The following arrangements were used in different plants to prevent poisoning:

Ventilator and gas mask....63 cases (30.0%)
Ventilator .....39 cases (18.6%)
Gas mask .....61 cases (29.0%)

In 47 cases there were no safety arrangements of any kind. The author concludes that better arrangements should be made to safeguard the workers, and that they should be informed about the dangers associated with this work. Furthermore, he recommends that to rid the workshops of the heavy "paint dust" these be equipped with suction ventilators.

FLUOROGRAPHIC CONTROL OF TUBERCULOSIS AND SILICOSIS IN THE METAL INDUSTRY OF NORTHERN ITALY

Italian physicians since the time of Ramazzini have had a keen interest in problems of occupational medicine, and this interest is still active. Despite the difficulties of the post-war period, several journals devoted to this field have continued to appear. A number of items from recent issues of *Medicina del Lavoro* will illustrate this tendency.

Vigliani, Parmeggiani, and Zanetti report the results of a fluorographic survey from 1945 to 1948 among 25,253 workers in foundries and steel works of Northern Italy.[5] All these workers were insured against tuberculosis. Pneumoconiosis was observed in 2.20 per cent of the cases. These were divided into: reticulation and reticular fibrosis 1.45 per cent; nodular and massive silicosis and silico-tuberculosis 0.75 per cent. Dust alterations were found to be more frequent among workers in foundries and steel works (5 per cent), less frequent among those in cast iron and in nonferrous foundries, and fewer still among mechanical workers exposed to dust inhalation (0.92 per cent).

Tuberculosis (including primary complexes and healed foci) was revealed in 12.90 per cent of the workers. Cases of active tuberculosis, or such as were regarded as active were distributed as follows: steel foundries and plants 2.68 per cent; mechanical works 2.26 per cent; cast iron and nonferrous foundries 1.35 per cent. Tuberculosis was found to be more frequent in those industries where the silicosis danger is greater. The cases of active tuberculosis amounted to 1.90 per cent of the total.

The authors conclude that the fluorographic method is suitable for early

diagnosis and control of silicosis and tuberculosis in industry. Annual fluorographic examination reveals any progression of tuberculosis or silicotic lesions. A mobile fluorographic unit is more suitable for industrial establishments situated far from urban centers where fixed installations exist.

RADIOLOGICAL STUDIES OF THE LUNGS IN SILICOSIS

Zanetti made a radiological study of the hilar shadows of 1,026 silicotics.[6] A very high percentage of enlargements and thickening of the hili was observed, particularly in early forms. In more advanced nodular forms there is a tendency to a reduction of the previously enlarged hili. In massive or conglomerate silicosis the severe alterations of the parenchyma sometimes hide the hilar shadows to a considerable degree. In slowly advancing silicosis, the changes are often chiefly glandular, with considerable increase in the size of the shadows, especially noticeable in the case of the inferior parahilar glands.

EVOLUTION OF SILICOTIC LESIONS IN WORKERS NO LONGER EXPOSED TO DUST

What happens to the lesions of silicotics after removal from exposure to the deleterious dust? Montesano undertakes to throw light on this point.[7] He points out that there are three opinions on this matter: (1) That the lesions are arrested and in some degree undergo gradual resolution; (2) That the lesions continue to progress; (3) That they remain stationary.

Montesano has had experience with anthracite miners for several years, and has considered the problem from the medical, industrial, and medicolegal aspects. He began by studying and following 30 such cases, but as some dropped out later only 12 are reported in this paper. For 10 of the 12 workers, two x-ray photographs, taken 3 years apart are reproduced. The findings were quite similar in all the cases. The first x-ray examination showed a diffuse fibrosis, the second an "extensive massive silicosis."

Montesano was particularly impressed by the varying rates at which the lesions progressed. In some, the lesions after 6 months were at a stage which was not seen in others for years. The second point which he makes is that the lesions progressed whether or not the man was removed from his job. Third, the lesion progressed at the same rate no matter whether the workers stayed at their jobs or left. In the case of nine workers who had changed their occupation 3 to 5 years before, this did not change the development of the disease, provided that there was no associated tuberculosis. It should be mentioned that all these cases were not complicated by tuberculosis. The author recommends careful preëmployment examinations, frequent change of occupation, and adequate dust removal. He sums it up aphoristically: Don't remove the worker and leave the dust, but remove the dust and leave the worker.

THE PATHOLOGY OF WORKERS EMPLOYED IN THE PRODUCTION OF NITRO- AND DINITROBENZOL

Bellesini examined 22 workers engaged in the manufacture of nitrochlorobenzol and dinitrochlorobenzol.[8] Fifteen of these men who had been employed for less than a year complained of nothing but a slight dermatitis. The author points out that the workers are supposed to wear masks, gloves and special clothes, but as soon as supervision is relaxed masks and gloves are generally removed. The seven other men in the group had been employed for periods varying from 5 to 22 years. Chief complaints in this group were headache and cramp-like abdominal pains. Pruriginous dermatitis was common, but if the worker was removed from exposure for

a while this condition soon cleared up. The blood picture was characterized by a mild degree of hyperchromic anemia, with poikilocytosis, anisocytosis, and macrocytes. There was an increase in the reticulocytes. The white cell findings were quite variable. There was some hepatic enlargement. Bilirubin and to a lesser degree urobilin were increased in the blood, and the Takata-Ara reaction was positive.

The author points out that acute poisoning in the industry is rare, and that most of the workers have been employed for a long time. The compounds enter the body either through the skin or through the respiratory tract. Ordinary protective measures, if employed by the workers, seem to be adequate to prevent poisoning.

OCCUPATIONAL TUMORS OF THE LUNGS

Saita points out that pulmonary tumors have increased greatly during the past decades, and that many physicians feel that this development is due in part to increased industrial employment of irritant or toxic carcinogenic materials.[9] Consequently, he reviews clinical, statistical, and experimental data on tumors of the lungs caused by dust and substances used in industry. Saita concludes that only asbestos dust and coal tar derivatives have an unquestioned facility for producing tumors of the lungs. This is probably true also of certain radioactive substances and chrome derivatives. The percentage of workers affected with occupational pulmonary cancer is low. Consequently, strictly occupational cancers are responsible only in small part for the increase in pulmonary tumors in the last few decades.

BARRIER CREAMS IN THE PROPHYLAXIS OF OCCUPATIONAL DERMATOSES

Barrier creams as a method for the prevention of industrial dermatitis have not yet been introduced in Italy.[10] Puccinelli discusses the theoretical and practical principles involved, and how the creams may be used. He reports on the first encouraging results of experiments with such creams and expresses the hope that this protective device may soon be widely used in Italy.

OCCUPATIONAL PATHOLOGY OF GLASS THREADS

Cirla offers an interesting report on a group of 25 workers employed at covering electrical conductors with spun glass.[11] In this group symptoms were noted and these traced to the action of dust created from the glass fibers in various phases of the work. The symptoms affect chiefly the skin—persistent itching and needle-shaped areas of erythema, at times resembling scabies. Changes of lesser significance were noticed on the mucous membrane of the respiratory organs and the conjunctiva. The possibility of pulmonary damage from glass threads still lacks confirmation and further observation is needed. This also applies to the gastrointestinal tract. Protective measures recommended are the provision of showers for the workers, and measures for dust limitation and removal. Cirla concludes that the working of spun glass is exceedingly tiring, but not dangerous to any degree.

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Maryland Observes an Anniversary

Maryland observed the 75th anniversary of the establishment of its State Board of Health on May 27, in connection with the 29th annual conference of the State Department of Health. In 1874 the General Assembly of Maryland became the sixth state legislature in this country to establish a board with statewide authority in matters pertaining to public health and prevention of disease.

Robert H. Riley, M.D., Director of the State Department of Health, points out that the forward looking step taken by Maryland three-quarters of a century ago was an expression of a national trend toward greater awareness of public health needs. At the time of its establishment the State Board of Health as summarized in the April issue of the *Maryland Health Bulletin* limited its interest largely to the prevention of epidemics, improvement of unfavorable sanitary conditions, and reporting of deaths. Personal hygiene entered the program in 1922 with the inauguration of preventive and educational services for expectant mothers, which were soon followed by school health work, a dental program and concern for industrial health problems. By 1934 each county in the state had full-time health service, reportedly the first state to achieve 100 per cent coverage. The organization of a medical care program for indigent and medically indigent residents of Maryland's counties in 1945 marked the extension of the health program into the curative field. Administration of chronic disease hospitals and state tuberculosis hospitals have followed. Mental health, cancer and heart programs have been the latest additions. In general the growth of Maryland's health program during the 75 years of existence reflects the advance of medical knowledge and the development of public health theory and practice in the United States and throughout the world.

Dr. Riley has been State Health Officer since 1928, in length of service the fourth oldest state health officer in the United States.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

POST-CONVENTION TOUR TO BERMUDA
Six Days — 2½ Days in the Islands

A recent *News Letter* to the members proposed as a possibility a post-convention tour to Bermuda under Association auspices at the close of the 77th Annual Meeting in New York City. Many interested persons have responded and the tour will take place.

The party will leave New York at 3:00 P.M. on October 29—the meeting closes Friday afternoon, October 28—on the luxurious "Queen of Bermuda." The trip will be a real "House Party" with congenial companions.

The Hotel Princess will be home during the 2½ days in Bermuda. It stands on a peninsula overlooking Hamilton Harbor. Every one of its rooms commands a breath-taking view.

Bermuda is intriguing, picturesque, irresistible. It is a land of cedars and blossoms, sloping green hillsides, charming bays and beaches, of white and pastel coral cottages, and it has a tempo that banishes time and care. The hibiscus, bougainvillea, Bermuda morning glories, the oleander, zephyrantes, Guernsey lilies and many other varieties of flowers will be in bloom in late October. The sight-seeing program planned as part of the tour will give the party the best of the islands.

The schedule is as follows:

October 29	Leave New York at 3.00 P.M See the upper and lower Bays, the famous skyline, have tea and dance, if you will.
October 30.	In the Gulf Stream. A lazy day at sea, with deck sports and dancing for the not so lazy.
October 31.	Arrive Five Fathom Hole at 7:00 A.M. and cruise along the colorful North Shore into Great Sound and Hamilton Harbor. Ashore about 9:00 A.M.
	Half day sight-seeing trip to the South Shore, the Devil's Hole, Crystal Cave, Perfume Factory, and Aquarium, returning by the North Shore.
November 1.	This is the day for your shopping, your bicycling and your own individual investigations of Bermuda's sights and sounds.
	Sail at 3:00 P.M.
November 2.	On board the "Queen."
November 3.	Arrive New York about 9.00 A.M.

A scientific program afloat and ashore is being worked out. On ship there will be opportunity to visit the ship kitchens; the hospital; hear the officers discuss ship sanitation, disposal of wastes, control of vermin and the ship doctor discuss shipboard diseases, accidents and hazards. On shore a trip to the unique horizontal wells which provide most of the drinking water for Hamilton will be arranged for those interested. It is hoped that Dr. Henry Wilkinson, Senior Medical Officer of the Bermuda Medical and Health Department, or a member of his staff will acquaint the party with Bermuda's health program.

The inclusive price of all this begins at $183.80 and advances by easy stages for those who want the choicer staterooms and hotel rooms. Prices include room with private bath and meals on ship; hotel room with twin beds, bath and meals at the Hotel Princess; sight-seeing; baggage transfers between boat and hotel, federal and Bermuda taxes and all admissions on sight-seeing trip.

Mr. Leon V. Arnold, Travel Consultant, and as familiar with Bermuda as he is with the back of his hand, is acting for the Association in making travel arrangements. If you wish to be included in the group the Association will take to Bermuda this fall, write him at once at 36 Washington Square West, New York 11, N. Y., or address your letter to the Association Office, 1790 Brodaway, New York 19, N. Y.

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

Hotels	*Rooms with Bath*	
	Singles	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	3.50–10.00	8.00–14.00
Statler	4.50– 7.50	7.00–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

* The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949

(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
Double Room without Bath at $..... per day for ..... persons
Single Room without Bath at $..... per day
Suite at $..... per day for ..... persons

ARRIVING: OCTOBER .... Hour ..... LEAVING: OCTOBER .... Hour .....
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name .....
Street Address .....
City ..... State .....

Mail Direct to the Hotel of Your Choice.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Lucile Petry, R N, M A, 2700 Wisconsin Ave, N W, Washington, D C, Chief Division of Nursing, U S P H S

Dorothy L Petsch, R N, Worthington Hospital Assn, Worthington, Minn, Student Univ of Minnesota School of Public Health

A P Ulbrich, D O, 13535 Woodward, Detroit 3, Mich, Dermatologist

George A Van Gemert, 2300 Connecticut Ave, N W, Apt 811, Washington 9 D C, Administrative Assistant, UMWA Welfare and Retirement Fund

Waldemar J A Wickman, M D, M P H, 5011 Jamestown Road, Washington 16, D C, Chief of Outpatient Section Division of Hospitals, Bureau of Medical Services, U S P H S.

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Florence Brugger, M A, Public Health and Welfare, GHQ, SCAP, APO 500, Postmaster, San Francisco, Calif, Chief, Social Work Training Branch

John Flannery, 8320 13th Ave, Brooklyn 28, N Y, Student, Columbia Univ, New York, N Y

V. Keith Giddings, 1135 Fullerton, Chicago, Ill, Inspector, American Institute of Baking

August W Koenig, 400 Beverly, P O Box 179, Tracy, Calif, Administrator, Tracy Community Memorial Hospital

Dwight H Murray, M D, Box 209, Napa, Calif, Private Practice

Martin L Norton, 2317 Tiebout Ave, New York 57, N Y, Inspection Officer, Foreign Quarantine Division, U S P H S, Federal Security Agency

Chester F Porterfield, 56 E 52nd St, New York 22, N Y, Vice-president, L W. Frohlich and Co, Inc

Joseph J Rodelli, 1148–64th St, Brooklyn 19, N Y, Health Inspector, New York City Dept of Health

Herbert S Stalker, M D, Tranquille. B C, Canada, Medical Supt, Tranquille Sanatorium, British Columbia Tuberculosis Division

Morris A Wolf, R N, 675 E 140th St, New York 54, N Y, Registered Nurse

THE ENGINEERING SECTION PROJECT

The Engineering Section Project completed two and a half years of activity on May 1. On the same date it lost its first field director in that William T. Ingram, formerly Engineering Field Associate of the Association staff, became Associate Professor of Public Health Engineering at the New York University College of Engineering. Important and noteworthy progress has been made through the activities of Mr. Ingram, other members of the staff, and of the Engineering Section during the first 30 months of the Project.

The purpose of the Engineering Section Project is to improve administrative practices, assist in training personnel, and guide qualified individuals into public health activities in environmental sanitation. Some of the highlights of activities undertaken so far should be of interest to the whole public health profession.

The problems which attend the execution of environmental health services have been explored and analyzed. Administrative problems including the planning of programs, the evaluation of positions, and the determination of work loads have been discussed with state and local sanitation and health officials throughout the country. Problems of training engineers and sanitarians have been discussed with the workers and their supervisors and with those who do the training. Communities, colleges. and field training units have been visited, and personnel needs investigated. Many engineers and sanitarians now employed can trace their present employment to a Project activity.

A research project has been established to bring together and continue work now being done by several associations, schools, and health departments in the United States. Included in the research will be studies to determine the validity of objective methods of evaluating sanitation administrative practice. The program will also study and compare the effectiveness of program, job and time evaluation methods.

The Project has contributed, through publications, to the development of new concepts concerning the training of both engineers and sanitarians and has, through groups such as the Association Committee on Professional Education, and the Sanitary Engineering Subcommittee of the American Society for Engineering Education, played a part in the modification of training facilities to meet the field requirements for trained personnel. In coöperation with the Association Committee on Professional Education, data have been obtained and published indicating the extent of training facilities for engineers and sanitarians and the numbers enrolled for such training. Training through short courses for water works operators, sewage works operators, food handlers, milk plant operators, and others have been considered and information presented to interested groups. A roster of all sanitary and public health engineers in the United States is now in preparation.

The American Public Health Association is the professional home of all personnel engaged in public health work. The Engineering Section Project is the staff operation which brings together many activities common to the Engineering Section, the Committee on Professional Education, and the Committee on Administrative Practice. The interests of these three are voiced through the Engineering Section Project Coördinating Committee, comprised of Ira V. Hiscock, *Chairman*, Harold A. Whittaker, Sol Pincus, and Roy Morton. The project is supported this year by funds contributed by the National Sanitation Foundation, the American Can Company, and Wallace & Tiernan, Inc. Research work of the project is being carried on under a grant from the U. S. Public Health Service, Division of Research Grants and Fellowships.

RESOLUTIONS COMMITTEE FOR NEW YORK MEETING

Appointment of the Resolutions Committee to serve at the Annual Meeting in New York is announced by Charles F. Wilinsky, M.D., *President*. The members appointed are:

Herman E. Hilleboe, M D., *Chairman*
Mary P. Connolly
Robert D. Defries, M D.
Alfred L. Frechette, M.D.
Ruth W. Hubbard, R.N.
Stanley H. Osborn, M.D.
W. G. Smillie, M.D.

Suggested resolutions can be sent to the committee, c/o the Association, now. As in the past, a resolutions box will be placed near the registration desk, Hotel Statler, New York City, at the time of the Annual Meeting. The time for closing the box, as determined by the Executive Board, will be announced at that time.

A.P.H.A. membership application blank on page XXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Director for Public Health Nurses; requirements: Graduation from an approved university or college with a bachelor's degree in nursing, arts or science which included or was supplemented by courses prescribed for an approved program of instruction of public health nursing experience, at least two years of which were under adequate nursing supervision and two years of which involved responsibility for supervision of public health nursing; or any combination of public health nursing experience and special training which in the opinion of the Public Health Council is equivalent. Salary $3,500 plus $280 cost of living bonus; retirement system, vacation, sick leave, 45 hour week. Write Douglas H. Fryer, M.D., Commissioner of Health, Columbia County Dept. of Health, Hudson, N. Y.

Director of Nursing—salary $4,320–$5,400; **Supervising Public Health Nurse**—salary $3,660–$4,572. Must have California Nursing license and meet the standards as set up by the California State Department of Public Health. Five and a half day week, vacation, sick leave and retirement plan. Write William F. Stein, M.D., County Health Officer, County of Fresno, Fresno, Calif.

Physician as Director of City-County Health Department. Rapidly expanding, soon to be multi-county unit. Starting salary minimum $6,500 plus $75 a month expense. Will pay to $8,000 for right man. Write: Board of Health, Defiance, Ohio.

Field Supervisor—background of community organization and voluntary agency experience (preferably tuberculosis) would be essential. Prefer man, age 30 to 40, however the qualifications are of first importance. Salary range $3,336 to $4,200 plus travel and maintenance in the field.

Executive Assistant—background of administration and experience in writing would be essential. Salary range $4,200–$5,000. For both above openings write to: Virginia Tuberculosis Association, Atlantic Life Bldg., Richmond 19, Va.

Health Officer and Director of the Topeka-Shawnee County Health Department. Salary $7,600 to $9,120 plus travel allowance. M.D. degree, graduate work in public health and experience required. Duties varied. Write: Mayor, City Bldg., Topeka, Kan.

Director, Division of Epidemiology of the Kansas State Board of Health. Salary $6,600 to $7,800 plus travel allowance. M.D. degree, experience in epidemiology and general public health. Write: F. C. Beelman, M.D., Executive Officer and Secretary, Kansas State Board of Health, Topeka, Kan.

Director, Local Health Administration of the Kansas State Board of Health. Salary $7,600 to $9,120 plus travel allowance. M.D. degree, administrative public health experience. Write: F. C. Beelman, M.D., Executive Officer and Secretary, Kansas State Board of Health, Topeka, Kan.

Director for two-county health department located in Upper Peninsula of Michigan. Population approximately 27,000. Public health training and experience desirable. Salary $7,200 for qualified person. Must furnish car; 6¢ per mile. Write: Health Department, Stambaugh, Mich.

District Nutritionist in Mississippi State Board of Health Beginning salary for nutritionist is $2,800; nutritionist consultant $2,800 to $3,400; M. S. degree in public health nutrition. Write: Nutrition Services, Mississippi State Board of Health, Jackson, Miss.

Assistant Director, M.D. (Maternal and Child Health) beginning salary $6,192 with the Los Angeles County Health Department. Two years' recent experience in the practice of medicine in a public health department is required. Six months of the experience must have been in MCH. Write: Los Angeles County Civil Service Commission, 501 North Main Street, Los Angeles 12, Calif.

Public Health Nurses: for staff positions in county health department. Program includes a special project in Maternal and Child Health and a unique working relationship in health education with a teacher training institution. Excellent offices in a small college town in Central Michigan. Salary for nurses with public health training and experience $3,000 plus 6¢ per mile.

Write: Director, Isabella County Health Department, Mt. Pleasant, Mich.

Director for Visiting Nurse Association in suburb of Chicago; degree in public health nursing and at least five years' experience required; retirement plan, 40 hour week, small staff, N.O.P.H.N. standards and salary schedule maintained. Write: Miss Marion Carpenter, 1318 Judson Avenue, Evanston, Ill.

Health Education Consultant for city-county health department. Requirements: master's degree in health education and one year full-time experience in a local health department or voluntary health organization involving community organization. Start at $275 per month, with sick leave and annual leave. Industrial population of 180,000. Write: Director of Health, State Department of Health, Charleston 5, W. Va.

Director Tuberculosis Control: Public Health or sanatorium trained physician to direct tuberculosis program. Duties include reading of x-rays, consultations with patients and nurses, also some pneumothorax work and sanatorium rounds. Excellent opportunity for rounded program. Salary $7,500—maintenance for single physician. Apply to Dr. Paul M. Golley, Director, Chattanooga-Hamilton County Health Department, Chattanooga, Tenn.

Public Health Physicians: for District Offices of State Health Dept.; starting salary about $7,000 with increases to $7,650; excellent civil service and retirement system; write Roland R. Cross, M.D., Director, State Dept. of Public Health, Springfield, Ill.

Public Health Training Center: Experienced personnel—3 public health nurses; 2 sanitary engineers; 1 health educator, needed for Training Center just being started. Good salary. Write Roland R. Cross, M.D., Director, State Dept. of Public Health, Springfield, Ill.

Dentist to serve as clinician in a school dental health program, operating a well equipped modern dental trailer, salary $5,000 per annum. Write to: S. D. Sturkie, M.D., Director, Joint Health Dept., Charlottesville, Va.

Health Educator—Master's degree in public health with experience in teaching school and experience in local health department desirable. Salary $4,000 per year plus travel compensation. Large midwest university community. Write **Box A-69**, Employment Service, A.P.H.A.

Announcement

United States Public Health Service

A competitive examination for appointment of Medical Officers and for Veterinarians in the Regular Corps of the U. S. Public Health Service will be held on October 3, 4, and 5, 1949. Applications must be received no later than September 5. Forms and additional information may be obtained by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.

POSITIONS WANTED

Health Educator—M.A. in health education (Teachers College, Columbia), 32, male, married. Two years' working experience in health education with official and voluntary agencies including teaching; five years army officer in charge of group and public relations work in Special Service Division. Interested in position with official or voluntary agency or teaching. Write **Box HE-7**, Employment Service, A.P.H.A.

Laboratory Assistant—B.A.; several years' experience in routine and research in public health laboratories; office procedures and patient contact; desires position in industry or public health. Write **Box L-9**, Employment Service, A.P.H.A.

Sanitary Engineer—B.E., M.S., in Sanitary Engineering; 18 years' general engineering experience. Desires position in Sanitary or Public Health Engineering field preferably in the Southwest, with industry or health department. Write **Box E-11**, Employment Service, A.P.H.A.

Bacteriologist—B.S., four years' experience in the Hospital Corps of the U. S. Navy, laboratory testing, use of biologicals and administrative duties. Desires position in public health or industry. Write **Box L-10**, Employment Service, A.P.H.A.

Bacteriologist—academic position as instructor or assistant professor—B.S. Zoology, M.A. Plant Physiology, Fellow Bacteriology and Public Health. Experience: 4 years teacher public school systems; 4 years civil service; 5 years bacteriologist including chief medical technologist clinical laboratories, research work, viruses, streptococci and histological techniques. Write **Box LD-4**, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—PUBLIC HEALTH PHYSICIANS FOR FOLLOWING. (a) Administrative appointment; M.P.H. or D.P.H. required; woman eligible; $7,000–$10,000; eastern metropolis. (b) Director, student health; liberal arts college; approximately 8,000 students; well equipped hospital; duties administrative rather than clinical; Pacific Coast. (c) To direct city-county health department; duties include serving as medical director on part-time basis, local sanitarium; South. (d) Woman physician; student health appointment; young women's college; faculty rank; East. (e) To direct well established program, South American country; English speaking colleagues. (f) To direct division of geriatrics and adult hygiene; Middle West. (g) Director, city-county health unit; college town located in resort area, Rocky Mountain state. (h) Student health physician; liberal arts college; duties involve part-time only; opportunity for private practice; Middle West. PH8-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED — PUBLIC HEALTH DENTISTS FOR FOLLOWING: (a) Health Department, public schools; enrollment 23,000; Indiana. (b) To operate mobile dental unit; rural section, New England; $4,500, traveling expenses. (c) Clinic for underprivileged children; $4,800, car allowance; South. PH8-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED — PUBLIC HEALTH NURSES FOR FOLLOWING: (a) Director, visiting nurse association to succeed director, twelve years' tenure; staff, fourteen; university town, Middle West. (b) Field position connected with educational program, large insurance company; considerable traveling. (c) Maternal and child health nursing consultant; Pacific Coast; $4,000. (d) Director, health service, 200 bed hospital; university town. (e) To supervise newly organized visiting nurse service; independent agency; challenging opportunity; vicinity New York City. (f) To serve as executive secretary, health organization; duties include conducting surveys; Middle West. (g) Supervisor of field staff of seven; city health department; East. (h) Student health nurse; coeducational college, 1,800 students; well equipped infirmary of 60 beds; private apartment available; $3,600. (i) Student health appointment; young women's college; East. (j) Industrial nurse; senior supervising position; medical department approved by ACS; industrial company having thousand employees; capital city, Middle Western state. PH8-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Health educator; B.S. (Education), M.P.H.; four years, staff public health nurse; four years, director, cancer health education unit; past several years, director, program, industrial and school health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.S. Public Health, eastern university; four years, health educator, county health department; three years, health coördinator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public Health dentist; M.P.H.; three years, director, dental department, public schools; six years, dental officer, state department, public health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health physician; degrees, eastern schools; M.S. (Public Health) Columbia; has held important administrative appointments in Public Health here and abroad; experience in teaching; member, American Board of Preventive Medicine and Public Health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nursing administrator; B.S. (Nursing Education), M.P.H.; three years' rural nursing; four years, supervisor, city-county health unit; past several years on faculty, university school of public health nursing; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S., Civil Engineering; several years, sanitary engineer, tropics; past four years, chief, engineering division, county department of health; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Statistician; M.S., Ph.D. degree; five years' teaching experience; past several years, director vital statistics, division city health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

SECOND WHO ASSEMBLY MEETS IN ROME

United States delegates to the 2nd World Health Assembly which met in Rome during the month of June were as follows:

Delegates:
Leonard A. Scheele, M.D., Chairman
Surgeon General, U. S. Public Health Service
Mrs. Quincy Wright, Director, Council on Foreign Relations
Edward S. Rogers, M.D., Dean, School of Public Health, University of California

Alternates:
James R. Miller, M.D., Board of Trustees, American Medical Association
H. Van Zile Hyde, M.D., U. S. Public Health Service
Howard B. Calderwood, State Department, Division of United Nations Economic and Social Affairs

Consultants:
Allen J. Ellender, Democratic Senator from Louisiana
Joseph L. Pfeifer, Democratic Representative from New York

Delegates and observers from 70 countries and territories attended the Assembly.

At the time of going to press, few of the Assembly's decisions had been made. Among the action to be taken was the election of 6 new members of the Executive Board, the United States being one of the 6 countries the term of whose representative expires.

The proposed total budget of WHO for 1950 is approximately $17,000,000, made up of nearly $8,000.000 of regular contributions from member nations and about $9,000,000 for technical assistance under President Truman's plan for aid to "backward areas."

During the early days of the Conference the Program Committee concerned itself with plans for expanding maternal and child health activity, education and training of public health personnel, and venereal disease control. It agreed upon a $1,000,000 program for maternal and child health including expert advice and demonstration teams subject to further action by the Committee on Administration and Finance. It also agreed upon $800,000 for expanding the work of venereal disease control. As to the world-wide shortage of medical and other public health personnel, the establishment of international medical schools under WHO sponsorship in the organization's regional offices was proposed. A total budget of $3,000,000 for overcoming personnel shortages was recommended. The Program Committee also recommended a $1,000,000 attack on poor sanitation as the basic cause of filth-borne, insect-borne, water-transmitted diseases that weaken an estimated three-quarters of the world's population.

A meeting of the Executive Board was held immediately after the close of the Assembly's sessions.

LIAISON BETWEEN A.P.H.A. AND A.A.P. CHILD HEALTH COMMITTEES

Recognizing that they have the same ultimate objective, the A.P.H.A. Committee on Child Health and the American Academy of Pediatrics Committee for the Improvement of Child Health have prepared a joint statement which defines the separate contributions and avenues of approach, as well as the areas of mutual concern of these two groups. A digest follows:

The A.P.H.A. Committee on Child Health was established at the 1947 annual meeting to act for the Association in the expanding relationships with other national organizations concerned with children. It has been charged with development of a statement of principles, policies, and standards in the maternal and child health field; with making

recommendations concerning education for professional and technical workers in this field; and with the investigation of administrative, organizational, and program matters in child health. Professional public health workers in the field of maternal and child health are chiefly concerned with community-wide provision of services for mothers and children, financed and administered by public and private agencies. Since many of the workers in these programs are members of the American Public Health Association, the Association is in a position to influence the quality of community maternal and child health services.

The American Academy of Pediatrics Committee for the Improvement of Child Health was created in February, 1947, in anticipation of the need for prompt and appropriate action arising out of the Academy's nation-wide study of child health services. The purpose of the committee is to study for the Academy all matters pertaining to child health and welfare; to collect and analyze data; to furnish source material to Academy committees; and to submit recommendations for action by the Academy's Executive Board. The American Academy of Pediatrics is primarily concerned with establishing and maintaining the highest possible standards for pediatric education, practice, and research, and thus to preserve the quality of the preventive and curative aspects of medical care for children. Through its membership the Academy can influence the quality of care by working with medical societies to reach individual practitioners, and with medical schools and pediatric services of hospitals to reach medical students and nurses.

The programs and objectives of these two committees are closely related although the professional groups and approaches differ. The efforts of both are needed to bring about improvement in the care of children. The coöperation between these two committees will help to avoid duplication of effort and provide a basis for joint action in areas of mutual concern.

COMMISSION ON CHRONIC ILLNESS BORN

A permanent Commission on Chronic Illness was organized at a series of conferences in Chicago, May 19-20. The Commission represents the culmination of more than two years' work in laying the groundwork for a concentrated attack for the first time on the various aspects of the problem of what has been called the "daily disaster" of chronic illness. Late in 1946 a Joint Committee on Chronic Illness was formed by the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association. This committee was staffed by the A.P.H.A. through its Subcommittee on Medical Care and its Chairman was Ellen C. Potter, M.D., representing the American Public Welfare Association. In October, 1947, the Joint Statement of Recommendations on Planning for the Chronically Ill by the four agencies, as prepared by their Joint Committee, was published (*A.J.P.H.* 37:10 (Oct.), 1947, p. 1256).

Upon these recommendations were built the discussion and conclusions of the Section on the Chronically Ill of the May, 1948, National Health Assembly. In the fall of 1948 the Joint Committee became the Interim Commission on Chronic Illness, continuing under Dr. Potter's chairmanship.

At the recent meeting in Chicago, when the permanent Commission was created, the membership was broadened to 30 persons, including wide interest and geographical representation. The A.P.H.A. is represented by Dean W. Roberts, M.D., chief, Bureau of Medical Services, Maryland State Health Department, and Edward S. Rogers, M.D., Dean, University of California School

of Public Health. The objectives of the Commission will be definitely formulated and published shortly, on the basis of discussions at a closed session of the recent Chicago Conference. It is expected that they will be broadly similar to the goals of the Interim Commission which were:

1. to modify the prevailing attitude of society that chronic illness is hopeless; to substitute for the prevailing over-concentration on the provision of institutional care, a dynamic program designed as far as possible to prevent chronic illness, to minimize its disabling effects, and to restore its victims to a socially useful and economically productive place in the community;
2. to define the problems arising from chronic illness among all age groups, with full realization of its social as well as medical aspects;
3. to coördinate separate programs for specific diseases with a general program designed to meet more effectively the needs common to all chronically ill persons;
4. to clarify relationships among professional groups and agencies working in the field of chronic illness; and
5. to stimulate adoption in every state and community of a well-rounded plan for prevention and control of chronic illness and for the care and rehabilitation of the chronically ill.

The Commission is organized as a nonprofit corporation under the laws of Illinois and is appealing to foundations and other agencies for funds with which to carry on its work. The American Medical Association has appropriated $20,000 and is furnishing office space and equipment for five years. The National Society for Crippled Children and Adults and the New York Foundation have each provided $2,500 and the former is furnishing some staff service.

The Commission has 32 technical advisors, experts selected on the basis of their experience and achievements in the field of chronic illness. At the Chicago Conference they explored five areas of activity pertinent to the Commission's work: clinical problems, institutional care, non-institutional care, rehabilitation and convalescence, and community problems.

Between sessions of the Commission its work will be guided by a five member Executive Committee made up of Thomas Parran, M.D., dean, University of Pittsburgh Graduate School of Public Health, Mrs. Joseph T. Ryerson, active participant in Chicago civic affairs and the three officers as follows:

Chairman: Leonard W. Mayo, S.Sc.D., Vice President, Western Reserve University
Vice chairman: James R. Miller, M.D., Member, Board of Trustees, American Medical Association
Secretary: J. Douglas Colman, Executive Director, Maryland Hospital Service

The U. S. Public Health Service has assigned Mrs. Lucille M. Smith of its staff to serve as Executive Secretary pending the appointment of a staff director. At the Chicago meeting the Surgeon General, Dr. Leonard A. Scheele expressed the federal government's keen interest in the new Commission. Without any official connection, he expressed the Service's attitude as "What Can We Do To Help?"

NEW ASSISTANT SURGEONS GENERAL

The Public Health Service has three new Assistant Surgeons General, including the first woman ever to hold that office. She is Lucile Petry, Chief Nurse Officer of the Service. She was inducted in ceremonies in the Federal Security Building, Washington, on June 7. The other two new Assistant Surgeons General are Otis L. Anderson, M.D., and Vane M. Hoge, M.D., both of the Bureau of Medical Services. Dr. Hoge has been chief of the Division of Hospital Facilities since it was created in 1946.

Surgeon General Leonard A. Scheele has also announced the creation of two new divisions in the Service, the Division of States Grants, successor to the Division of States Relations, whose chief is Estella Ford Warner, M.D., the first woman to be commissioned in the Regular Corps; and the Division of

Chronic Diseases whose chief is Albert M. Chapman, M.D., formerly assistant chief of the States Relations Division.

NEBRASKA'S DR. PETTY RESIGNS

W. S. Petty, M.D., Health Officer of Nebraska since 1946, resigned as of August 1. He had been in the State Health Department since 1942. No successor has been selected. Dr. Petty has announced that he will take a refresher course in cancer diagnosis before taking a new position. He said that salary was one of the primary reasons for his resignations, the legislature having killed a bill designed to lift the ceiling of $5,500 annually for the job. Because of the low salaries and other unfavorable circumstances, Dr. Petty said he had but one physician in the department with six vacancies; five physicians have left the state service in the last four years to accept positions with higher salaries.

ILLINOIS MEDICAL HEALTH OFFICERS

The full-time medical health officers of Illinois, at the recent meeting of the State Public Health Association, revived the Illinois Association of Medical Health Officers which had been discontinued some years ago after it merged with the Illinois Public Health Association. All full-time medical health officers, school health physicians, professors of public health and preventive medicine, and other medical men engaged in full-time public health work are eligible for membership in the health officers association.

The following officers were elected:

President: W. H. Tucker, M D.
Vice-President: S. N. Mallison, M.D.
Secretary-Treasurer: Norman J. Rose, M.D.
Executive Committee: Arlington Ailes, M.D., A. C. Baxter, M.D., P. A. Steele, M.D.

AMERICAN REGIONAL OFFICE, WHO

On March 1, under a working arrangement between the two agencies, the Pan American Sanitary Bureau began to serve as WHO's regional office for the western hemisphere. It thus becomes WHO's third regional office. As a corollary, the New York City Office of WHO was closed on April 29 and the WHO Liaison Office moved to Lake Success.

The Pan American Bureau, organized in 1902, is the central coördinating health body for the 21 countries in the Pan American Union. It is currently sponsoring large-scale programs of yellow fever control in several South American countries. It has a regional office for South America in Lima, Peru, for Central America in Guatemala City, and a field office in El Paso, Tex.

PAN AMERICAN SANITARY ORGANIZATION

Among the recommendations made by the Executive Committee of the Pan American Sanitary Organization, meeting in Washington in May, were the following:

1. Recommendation to the Directing Council of a 1950 budget for the Pan American Sanitary Bureau of $2,000,000.
2. The issue by American countries of a commemorative educational and publicity stamp in 1952, the 50th anniversary of the founding of the Pan American Sanitary Bureau as the first international health organization.
3. A program of surveying medical education centers through staff provided by the Pan American Sanitary Bureau.
4. Coöperation of the American countries in a program designed to eradicate smallpox from the Western Hemisphere.

LEGISLATION IN NORTH CAROLINA

Greensboro and High Point in Guilford County, North Carolina, have populations respectively of about 60,000 and 40,000. There are about 150,000 persons in the entire county, the most populous in the state. Currently there are three health jurisdictions but an act of the recent state legislature established a single county health department to replace the three. This is one of the

earliest, if not the first instance, of mandatory legislation for city-county health department consolidations.

The appropriation for public health work for the next biennium was doubled with a large share of the additional money to be used for local health work. The amount for local health work was more than tripled, from $350,000, to $1,150,000 a year.

An act was also passed making cancer a reportable disease.

AMERICAN HEART ASSOCIATION MEETS

At the June meeting of the American Heart Association in Atlantic City, H. M. Marvin, M.D., Associate Clinical Professor of Medicine, Yale University School of Medicine, was elected President of the Association. Other officers are:

President-elect: Howard B. Sprague, M.D., Harvard Medical School
Vice-president: Edgar B. Allen, M.D., Rochester, Minn.
Treasurer: Grant Keehn, New York (re-elected)

Among the actions taken by this annual meeting were preliminary steps for making the American Foundation for High Blood Pressure the American Heart Association's Council for High Blood Pressure Research. Also organized at this meeting was the Staff Conference of Heart Associations comprising professional staff workers in state and local affiliates of the national organization. At a dinner meeting of this Conference, Professor Ira V. Hiscock, Chairman of the Department of Public Health, Yale University School of Medicine and the retiring president of the Association, Tinsley R. Harrison, M.D., each spoke, the former on "Community Organization for Health."

HOME CARE FOR CHICAGO CANCER CASES

Michael Reese Hospital, has received a grant from the Illinois Division of the American Cancer Society, to supply free home care for indigent cancer patients on an experimental basis. The program supplements one already in operation for heart patients. The service is also being expanded to include patients with arthritis, diabetes, and neurologic disease.

OFFICERS, MONTANA ASSOCIATION

The Montana Public Health Association at its recent annual convention in Glendive elected the following officers:

President: B. C. Farrand, M.D., practising physician, Jordan
Vice-president: K. Elizabeth Anderson, Director of Health Education, State Health Department
Secretary: B. K. Kilbourne, M.D., State Health Officer

RED CROSS INITIATES INTERNATIONAL HEALTH BULLETIN

The League of Red Cross Societies, made up of the National Red Cross Societies of 66 countries, inaugurated a new quarterly bulletin in January, 1949. It has two purposes: "to give a summary of the most recent and most original projects undertaken by the National Societies and to report on any important developments in medical science which might interest the Red Cross."

Vol. 1, No. 1, January-March 1949, has four sections; one a general section of signed articles by Drs. Brock Chisholm and René Sand, among others; one on Red Cross Throughout the World with brief news notes on the international tuberculosis campaign, the Swiss Red Cross blood program and BCG Vaccination in Greece, and others; and one on Medical News, one item of which deals with the risks and drawbacks in the use of certain new drugs such as penicillin, streptomycin, vitamins, urethan, and hormones; and the fourth on International Medical Life.

The *International Health Bulletin of the League of Red Cross Societies,* issued in both French and English, is edited by Drs. G. Alsted and Z. S. Hantchef at 8, rue Munier-Romilly,

Geneva. Its annual subscription is 6 Swiss francs or $1.50. Subscriptions should be arranged through the National Red Cross.

PLUMBING CODE ACCEPTED BY NEW YORK

The New York State Department of Health has accepted the recently published *American Standard Plumbing Code* and is recommending its adoption by municipalities in New York State. The *Code* was prepared by a committee sponsored jointly by the American Society of Mechanical Engineers and the A.P.H.A. Copies may be obtained from the A.S.M.E., 33 West 39 Street, New York. $2.50.

ARIZONA PUBLIC HEALTH ASSOCIATION

The 19th annual meeting of the Arizona Public Health Association in Prescott, May 12-13, replaced the lecture method previously used with a series of workshop sessions in which everyone had an opportunity to participate actively and to discuss problems dealing with his phase of public health work. A general forum followed section meetings of nurses, sanitarians, clerks and laboratory personnel.

Robert E. Rothermel, M.D., assistant field director, American Public Health Association, who was also moderator of the panel, "To Arizona's Future Health," spoke on health in Arizona, comparing expenditures of the "Baby State," which amount to approximately 24 cents per person, with the Hawaiian Islands where over $4 per person is spent annually.

The 1950 meeting is to be held in Safford and will again use the workshop technique.

Officers for the coming year are:

President: Mrs. Marion Sprague
President-elect: C. E. Reddick, M.D.
Vice-president: Margaret Eacrett
Secretary: Doris L. Rakop
Treasurer: Mary E. Peterson

Dr. Reddick and Mrs. Sprague are in the State Health Department, respectively as director of local health administration and administrative assistant.

COLORADO PUBLIC HEALTH ASSOCIATION

The annual meeting of the Colorado Public Health Association was held in Pueblo May 23-24 under the Presidency of Mrs. Mary H. Emberton, R.N., of Denver. The Secretary was Sara Lon Harrison and Chairman of the Program Committee was Norma Johannis, both of Denver. About 200 persons attended.

Out-of-state speakers included Fred T. Foard, M.D., Director of Health, U. S. Indian Service, Washington; Cyrus Maxwell, M.D., U. S. Office of Education, Washington; Fred Hein, M.D., American Medical Association, Chicago; Martin W. Fleck, Professor of Physiology, University of New Mexico, and Reginald M. Atwater, M.D., American Public Health Association, New York.

Symposia were held on state and local health councils, school health, veterinary medicine in public health, on industrial hygiene, mental health, and the interrelationships of preventive and curative services.

Officers elected at Pueblo include:

President: Roland H. Loder, M.D., Greeley
Vice President: Francis L. Candlin, D.V.M., Denver
Secretary: Mrs. Nevin Kilpatrick, Denver
Treasurer: Norma Johannis, Denver

GEORGIA PUBLIC HEALTH ASSOCIATION

The 20th annual meeting of the Georgia Public Health Association was held in Savannah, May 2–4, under the Presidency of Dr. C. A. Henderson, Health Officer of Savannah. Annie Taylor of the State Department of Health was Secretary.

Almost 500 persons registered for the three day meeting during which a series of general and special sessions were planned, representing a wide variety of public health interests. Special symposia

were held on stream pollution control, on medical nutrition surveys, on community organization, and on housing.

Out-of-state participants on the program were Russell M. Wilder, M.D., of the Mayo Clinic, Rochester, Minn.; Charles L. Williams, Sr., M.D., U. S. Public Health Service, Washington, D. C.; Professor and Mrs. C.-E. A. Winslow, New Haven, Conn.; Ruth E. Grout, Ph.D., University of Minnesota, Minn.; Warren T. Davis, Jr., U. S. Public Health Service, New Orleans, La.; M. R. Kinde, M.D., W. K. Kellogg Foundation, Battle Creek, Mich.; Emilie G. Sargent, R.N., Detroit Visiting Nurse Association, Detroit, Mich.; William P. Richardson, M.D., University of North Carolina, Chapel Hill, N. C.; and Reginald M. Atwater, M.D., A.P.H.A., New York.

New officers were elected as follows:

President: James A. Thrash, M.D
President-Elect: Charles D. Bowdoin, M.D.
Vice-President: Bessie F. Swan, R.N.
Secretary: C. S. Buchanan
Treasurer: Ernest B. Davis

NEW YORK STATE HOLDS 45TH ANNUAL HEALTH CONFERENCE

The 45th Annual Health Conference under the auspices of the New York State Department of Health was held at Lake Placid, N. Y., June 20–23. There was a large attendance representing health officers, public health nurses, sanitation personnel, school physicians, and others. Herman E. Hilleboe, M.D., M.P.H., Commissioner of Health, was Chairman.

Among the special sessions of the program were recent advances in the control of communicable diseases, how to get community participation for better health services, working for the establishment of basic local health services, water pollution control, nutrition in relation to dental health, international classification of diseases, injuries and causes of death, human relations in public health, local health records and their uses in administration and research, and other topics.

Out-of-State speakers included W. Palmer Dearing, M.D., Deputy Surgeon General, U. S. Public Health Service, Washington; Leroy E. Burney, M.D., Commissioner of the Indiana State Health Department, Indianapolis; A. L. Hoyne, M.D., Medical Superintendent of the Contagious Disease Hospital in Chicago; Emanuel B. Schoenbach, M.D., Department of Preventive Medicine, Johns Hopkins University, Baltimore; Joseph A. Bell, M.D., National Institutes of Health, Bethesda; Margaret Arnstein, R.N., M.P.H., Associate Director, Division of Nursing, U. S. Public Health Service, Washington; John W. Knutson, D.D.S., Chief, Dental Public Health Section, U. S. Public Health Service, Washington; Neal Chilton, D.D.S., Acting Chief, Section on Dental Diseases, New Jersey State Department of Health, Trenton; Adelia M. Beeuwkes, Assistant Professor, School of Public Health, University of Michigan, Ann Arbor; W. Thurber Fales, D.Sc., City Health Department, Baltimore, Md.; Thomas Parran, M.D., Dean, Graduate School of Public Health, Pittsburgh, Pa.; and Evelyn Flook, Chief of Records and Reports Section, Bureau of State Services, U. S. Public Health Service, Washington.

DDT INCORPORATED IN PAINT

Successful incorporation of DDT in oil-base paints, both flat and gloss, was reported by W. K. Lewis, Jr., and associates, before a meeting of the South Carolina Academy of Science in April, 1949. Tests of the toxicity of the paints carried on over a period of 3 years at the Crop Protection Institute, Durham, N. H., showed a high degree of effectiveness in paints applied at the beginning of the test period, according to the report. According to the authors, use of paint containing DDT should result

in cheaper control of insects plus less danger of possible harmful effects of DDT to man.

WESTERN BRANCH AMERICAN PUBLIC HEALTH ASSOCIATION

The 1949 meeting of the Western Branch American Public Health Association was held in Los Angeles May 30–June 1, under the presidency of George M. Uhl, M.D., M.P.H., the Health Officer of Los Angeles.

Nearly 1,200 persons registered during the three days and participated actively in programs built around dental health, poliomyelitis, Q fever, viral diseases, public medical care, atmospheric pollution, mental illness, the public health laboratory, public health nursing, pending federal legislation, geriatrics, tuberculosis control, training of public health personnel and sanitation. A large exhibit was a feature of the meeting and included the "Take an Examination" booth of the A.P.H.A. Merit System Service.

Among the participants from outside the area of the Western Branch were Ellis Tisdale, Engineer Director, U. S. Public Health Service, Atlanta, Ga.; Ernest B. Howard, M.D., American Medical Association, Chicago; R. A. Jensen, M.D., Minneapolis, Minn.; K. F. Maxcy, M.D., Johns Hopkins University, Baltimore; Edward G. McGavran, M.D., School of Public Health, Chapel Hill, N. C.; Seward E. Miller, M.D., U. S. Public Health Service, Atlanta, Ga.; Russell I. Pierce, M.D., U. S. Public Health Service, Washington, D. C.; B. Lees Read, Guy's Hospital, London, England; and Reginald M. Atwater, M.D., American Public Health Association, New York.

The Program Committee was under the chairmanship of Charles M. Carpenter, M.D., Los Angeles. Walter S. Mangold was Secretary and Treasurer.

The new officers of the Western Branch include the following:

President—Arthur L. Ringle, M.D., Asst. Chief, Tuberculosis Section, Area Office, Veterans Administration, San Francisco, Calif.

President-Elect—Wilton L. Halverson, M.D., State Director of Public Health, San Francisco, Calif.

1st Vice-President—L. S. Goerke, M.D., Director, Bureau of Medical Services, Los Angeles City Health Department, Los Angeles, Calif.

2nd Vice-President—Portia Irick, R.N., Director, Public Health Nursing, State Health Department, Santa Fe, N. M.

3rd Vice-President—Robert A. Downs, D.D.S., Director of Dental Health, State Department of Health, Denver, Colo.

Secretary-Treasurer—Walter S. Mangold, Associate Professor of Public Health, University of California, Berkeley, Calif.

UNIVERSITY OF PITTSBURGH FACULTY APPOINTMENTS

Thomas Parran, M.D., Dean of the University of Pittsburgh Graduate School of Public Health, has announced the following faculty appointments:

Antonio Ciocco, D.Sc., Deputy Chief, Division of Public Health Methods, U. S. Public Health Service—Head, Department of Biostatistics.

James A. Crabtree, M.D., Dr.P.H., Director, Medical Division, National Security Resources Board—Head, Department of Public Health Practice.

Paul M. Densen, D.Sc., Chief, Medical Research Statistics Division, Department of Medicine and Surgery, Veterans Administration—Associate Professor of Biostatistics.

Theodore F. Hatch, Resident Director, Industrial Hygiene Foundation, Pittsburgh—Professor of Industrial Health Engineering.

TWO NEW LASKER AWARDS

The Albert and Mary Lasker Foundation recently announced two new awards in its purpose "to acknowledge and publicly recognize efforts made by individuals or groups to combat the major causes of disease and death." The new awards for distinguished journalism will be given to writers of articles or a series of articles published in (1) an American daily or weekly newspaper, and (2) an American magazine, pertaining to the improvement of health or the prolongation of life through

medical research or other relevant means.

The awards of $500 each and a statuette replica of the Winged Victory of Samothrace, are being administered by the Nieman Foundation for Journalism, 44 Holyoke House, Cambridge 38, Mass., to whom all inquiries and requests for entry blanks should be made. Entries must be mailed not later than February 1, 1950, and must carry a 1949 publication date. Articles published in commercial house organs, technical medical and other limited professional journals are ineligible.

TREND OR ISOLATED INSTANCE?

In its May issue, the last before giving up publication because of "budget tightening," the *Health Commentator* of the Washington State Department of Health, reports a 16 per cent reduction in operating funds available to the department. Among the activities curtailed as a result is the closing on June 10 of the rapid-treatment center for syphilis, thus returning the treatment of low-income syphilis patients to local health departments. The state's mobile x-ray unit will be discontinued by the end of 1949; funds for the handicapped children's program have been cut by 17 per cent; more than two dozen state department workers have been dismissed; new sponsorship is being sought for a member of activities—the Seattle Guidance Clinic, the health film library, the tumor registry, among them.

PERSONALS

LEWIS W. ANDREWS, M.P.H., for the past 3 years, Director of Community Health Education, Kansas State Board of Health, has resigned to become director of public health education, Wichita-Sedgwick County Public Health Department.

REGINALD M. ATWATER, M.D., DR. P.H.,* of New York received the honorary degree of Doctor of Laws at the June Commencement of Colorado College, Colorado Springs, where he gave the commencement address.

ROBERT L. BOGLE is now sanitarian of Woodruff, Cross, and Prairie Counties, Arkansas, with headquarters at Augusta.

BERNARD M. BLUM, M.D., M.P.H.,* who has been District Health Officer of the Washington Heights-Riverside Districts, New York City Department of Health, and Assistant Professor in the Columbia University School of Public Health since 1941 has resigned to become Medical Director of the Fife-Hamill Memorial Health Center, Philadelphia, and Professor of Preventive Medicine and Public Health, Jefferson Medical College.

MARTHA BRANSCOMBE, PH.D., who has been Assistant Chief of the U. S. Children's Bureau, Washington, has resigned to join the staff of the Elizabeth McCormick Memorial Fund, Chicago, succeeding MARY MURPHY, deceased.

GLIDDEN L. BROOKS, M.D.,† has been appointed an Associate Director of the American Academy of Pediatrics' Committee for the Improvement of Child Health, Philadelphia. He will aid in developing an action program for the nation-wide improvement of child health.

DAVID D. CARR, M.D., M.P.H.,* has resigned his position as Director of the Topeka City-Shawnee County Health Department to accept a position as County Health Officer of Las Vegas, Nev.

HOLLAND M. CARTER, M.D.,† Director of the Madison and Taylor Counties Health unit in Florida has accepted a position with the South Carolina State Board of Health.

ALTA ELIZABETH DINES,* recently retired as Director of the Department

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* Fellow A.P.H.A.
† Member A.P.H.A.

of Educational Nursing of the Community Service Society, New York, and MARY M. ROBERTS, recently retired as editor of the *American Journal of Nursing*, on June 28 were awarded the Florence Nightingale Medal this year for "distinguished service and great devotion to the sick and wounded in time of war and in time of peace," at the American Red Cross national convention in Atlantic City.

CLIFTON O. DUMMETT, D.D.S.,† Professor of Dentistry and Dean of the School of Dentistry, Meharry Medical College, Nashville, has been appointed Chief of the Dental Service at the Tuskegee, Ala., Veterans Administration Hospital effective August 1.

ALEXANDER M. EARLE, M.D., formerly with the Pediatric Service of Bellevue Hospital, New York, is now pediatrician of the Virgin Islands Department of Health.

C. A. ELVEHJEM, PH.D., of the University of Wisconsin, at the recent annual meeting of the National Live Stock and Meat Board, was presented an award in recognition of his contribution to the science of biochemistry and his leadership in the field of nutrition.

JOHN E. FARRELL, SC.D.,* Executive Secretary of the Providence Medical Association, the Rhode Island Medical Society, and the Council of the New England State Medical Societies, was reëlected the secretary-treasurer of the Conference of Presidents and Other Officers of State Medical Associations at the 5th annual meeting of that organization at Atlantic City, on June 5.

FLOYD M. FELDMANN, M.D., DR.P.H.,* present Medical Director, Central Coordination and Analysis Office and Executive Secretary, Tuberculosis Study Section, U. S. Public Health Service, has joined the staff of the National Tuberculosis Association as Assistant to the Managing Director, JAMES E. PERKINS, M.D.*

WILLIAM H. GAUB, PH.D.,* has resigned as head of the Laboratory Section, Washington State Health Department, to be in charge of the U. S. Public Health Service Bacteriological and Parasitological Laboratories at Anchorage, Alaska. His duties will be assumed by W. R. BIEDT, M.D.,* Epidemiologist of the department.

JAMES B. HALL, M.D., who has just obtained his degree of Master of Public Health at the University of California, has succeeded H. A. SAUBERLI, M.D.,† as Director of the Leon County Health Department, Florida.

JOHN W. HART,† Director of the new products division, Sterling-Winthrop Research Institute, has been named a commander of the Order of Carlos Finlay by decree of President Prio of Cuba and action by the Cuban Congress. He will be presented the grand cross of the Order by the Cuban President in a presentation ceremony in Havana on December 3.

JOHN M. HENDERSON,* Professor of Sanitary Science, Columbia University School of Public Health, is on a 3 month assignment as consultant in malaria control with the World Health Organization, assigned to the training center in malaria control for southeast Asia, at New Delhi, India.

RAFAEL HERNANDEZ, PH.D., a former Meharry Medical School professor, has been added to the Virgin Islands Health Department staff, as a psychiatrist.

JOHN T. HERRON* has returned from the Harvard School of Public Health, with the Degree of Master of Public Health, to his duties as Assistant State Health Officer and Director of the Bureau of Local Health Services, Arkansas State Board of Health.

LOUISE JAMES,† who has been taking

* Fellow A.P.H.A.
† Member A.P.H.A.

advance work in pediatric nursing, in June resumed her duties as Maternal and Child Health Consultant in the Public Health Nursing Service, Arkansas State Health Department.

RALPH J. JOHNSON,† Sanitary Engineer, U. S. Public Health Service, and Consultant of the Service in the Hygiene of Housing has been appointed a member of the Joint Committee on Housing and Health of the National Organization of Housing Officials and the American Public Health Association of which BLEECKER MARQUETTE * of Cincinnati, Ohio, is Chairman.

EMANUEL KAPLAN, Sc.D.,* Chief, Division of Chemistry Bureau of Laboratories, Baltimore City Health Department, was recently elected President of the Central Atlantic States Association of Food and Drug Officials for the year 1949–1950.

GLEN KELLOGG, who has completed his work for a Degree of Master of Public Health in Sanitation at the University of North Carolina School of Public Health, has returned to the Arkansas Health Department as Sanitary Engineer in the Bureau of Sanitary Engineering.

LAWRENCE KOLB, M.D., has resigned as Director of Research Projects for the National Institute of Mental Health to become Consultant in Psychiatry at the Mayo Clinic, Rochester, Minn. JOHN EBERHART, M.D., Chief Psychologist of the Training and Standards Branch, succeeds Dr. Kolb.

H. M. C. LUYKX, D.Sc.,* Associate Professor of Preventive Medicine, New York University College of Medicine, has a 2 year appointment as Biometrician for the Atomic Bomb Casualty Commission in Japan, stationed in Kure. The Commission sponsored by the Atomic Energy Commission operates under the Committee on Atomic Casualties of the National Research Council.

ETHEL AUSTIN MARTIN,* Director of Nutrition Service, National Dairy Council, Chicago, is among the United States delegation to the 12th International Dairy Congress, being held at Stockholm, Sweden, August 15–19.

MARY ELIZABETH MCCONNELL, formerly connected with the Rochester, Minn., Health Department, working with Drs. Aldrich and Spock in the child health project, on May 15 became supervising nurse of the Division of Public Health Nursing, Ulster County (New York) Health Department.

MABEL OLSON, for the past 4 years public health nursing consultant in maternal and child health, Arizona State Department of Health, has resigned to return to her home in Cedar, Minn.

CLARENCE OVERCASH,† who received a Master of Public Health in Industrial Engineering at Michigan University has returned to his position as industrial engineer in the Industrial Hygiene Division, Arkansas State Health Department.

JAMES ELMER PETERMAN, M.D.,† has been appointed Assistant Health Officer in the Baltimore (Maryland) County Health Department succeeding ELIZABETH L. LANGELUTTIG, M.D., resigned. Dr. Peterman served for 5 years in the U. S. Army, 2 of them in the Division of Medical Statistics, Office of the Surgeon General, and nearly 2 in the Preventive Medicine Division, Office of the Chief Surgeon, Southwest Pacific Theatre.

ELIZABETH REED, R.N.,† who served as Acting Director of the Division for several months prior to completing work for the bachelor of science degree at Columbia University, has been appointed Director, Division of Health Information, Florida State Board of Health.

H. A. SAUBERLI, M.D., M.P.H.,† who has been Health Officer of Leon County, Tallahassee, Fla., since 1947,

has resigned to become Director of Local Health Services in the Colorado State Department of Public Health, Denver.

WILLIAM H. SHEETS, is the new field agent in the Bureau of Vital Statistics, Arkansas State Health Department.

JAMES C. THOMSON, PH.D.,† Professor of Nutrition, Nanking University, China, who for the past 2 years has been Visiting Professor of Nutrition in the West China Union University, Chengtu, is now lecturing at the Dr. Sun Yat-Sen Memorial Medical College, Lingnan University, Canton, in nutrition and during the summer will give a similar course at the Cheeloo Medical College, now temporarily located in Foochow.

WINSTON H. TUCKER, M.D.,* Health Commissioner, Evanston, received double honors at the recent annual meeting of the Illinois Public Health Association. He was elected President of the Illinois Association of Medical Health Officers, and made President-elect of the Illinois Public Health Association.

E. GIFFORD UPJOHN, M.D.,† Vice President, the Upjohn Company, Kalamazoo, Mich., was elected President of the National Vitamin Foundation for 1949 at the annual meeting of foundation members in New York, succeeding BASIL O'CONNOR,† President of the American Red Cross, who was named to the newly created position of honorary chairman of the Board of Governors.

HARRY F. WILSON, M.D.,* Director of the Division of Industrial Health, South Carolina State Board of Health, has been made Director of the Division of Laboratories as well.

THE FOLLOWING ARE NEW COUNTY HEALTH OFFICERS IN FLORIDA:

JOSEPH M. BISTOWICH, M.D.,† Leon County.

ROBERT RUSSELL, M.D.,† Jefferson County

JAMES L. WARDLAW, M.D., Madison-Taylor Counties.

MARYLAND PUBLIC HEALTH:

W. ROSS CAMERON, M.D.,* has been appointed Director of the new heart program which will be financed by a grant from the Public Health Service under the National Heart Act.

CARROLL E. L. EASTERDAY, M.D., was appointed Deputy State and County Health Officer of Frederick County, effective May 1, 1949.

LUCILLE A. WALLIS,† formerly public health nursing consultant in venereal diseases, became Assistant Chief of the Division of Public Health Nursing on April 1.

DEATHS

WILLIAM B. BORDEN, M.D., DR.P.H. (Col. (MC) Retd.),† Assistant Superintendent, Pinehurst State School, Wayne, Pa., died May 15, 1949 (Vital Statistics Section).

WILLIAM J. BUTLER, D.V.S.,† State Veterinary Surgeon and Executive Officer, Montana Livestock Sanitary Board, Helena (Unaffiliated).

W. E. DOYLE, M.D.,* Medical Director in the U. S. Public Health Service, died suddenly April 11. He had been stationed at the medical center of the National Cancer Institute since December 1, 1948 (Industrial Hygiene Section).

EDWIN BRUCE GODFREY, M.D.,† Director, Webster Parish Health Unit, Minden, La. (Health Officers Section).

WILLIAM F. HIGBY,* Executive Secretary, California Tuberculosis and Health Association, San Francisco, died June 24 (Public Health Education Section).

* Fellow A.P.H.A.
† Member A.P.H.A.

DWIGHT FENN JOHNSON, M.D., health officer of the town of Arcadia, Wayne County, N. Y., since 1912, died recently at the age of 70.

ERNEST C. MCCULLOCH, D.V.M., PH.D.,† Professor of Bacteriology, State College of Washington, Pullman, Wash. (Laboratory Section).

SIR GEORGE NEWMAN,* Ministry of Health, Whitehall, S.W.I., London, England (Unaffiliated).

RAY LYMAN WILBUR, M.D., formerly Fellow of the Association died June 26 at the age of 74.

CONFERENCES AND DATES

American Cancer Society. Park Sheraton Hotel, New York, N. Y. October 27–30.

American Congress of Physical Medicine. Netherland Plaza Hotel, Cincinnati, Ohio. September 6–10.

American Hospital Association. 51st Annual Convention. Hotel Statler, Cleveland, Ohio. September 26–29.

American Occupational Therapy Association. Book-Cadillac Hotel, Detroit, Mich. August 20–27.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Tropical Medicine, The American Academy of Tropical Medicine, and the National Malaria Society. Memphis, Tenn. November 6–9.

American Water Works Association:
- New York Section. Otesaga Hotel, Cooperstown, N. Y. September 6–7.
- Minnesota Section. Minneapolis, Minn. September 8–9.
- Pennsylvania Section. Penn-Harris Hotel, Harrisburg, Pa. September 14–16.
- Rocky Mountain Section. Acacia Hotel, Colorado Springs, Colo. September 22–23.
- Missouri Section. Connor Hotel, Joplin, Mo. September 25–27.
- Michigan Section. Park Place Hotel, Traverse City, Mich. September 28–30.

First International Congress of Biochemistry. Cambridge, England. August 19–25.

Florida Public Health Association. George Washington Hotel, West Palm Beach, Fla. October 6–8.

Illuminating Engineering Society. French Lick, Ind. September 19–23.

International Association of Milk and Food Sanitarians. Weschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.

National Association of Sanitarians. Biltmore Hotel, Los Angeles, Calif. August 15–18.

National Safety Congress and Exposition (National Safety Council). Buccaneer Hotel, Galveston, Tex. October 24–26.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y. November 7–9.

New England Health Institute. University of Vermont, Burlington, Vt. August 30–September 1.

II Pan American Congress on Pediatrics. Mexico, D.F. November 2–5.

Pennsylvania Association of Clinical Laboratories. Harrisburg, Pa. November 2.

Planned Parenthood Federation of America, Inc. Roosevelt Hotel, New York, N. Y. October 25–27.

Third Inter-American Congress of Radiology, Santiago, Chile. November 11–17.

Washington State Public Health Association. Spokane, Wash. September 19–20.

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35 YEAR INDEX

OF

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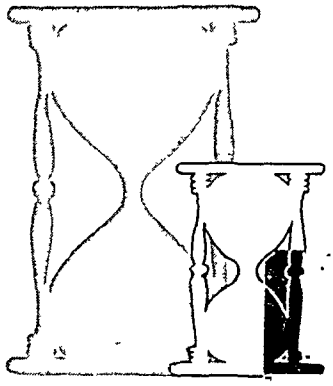
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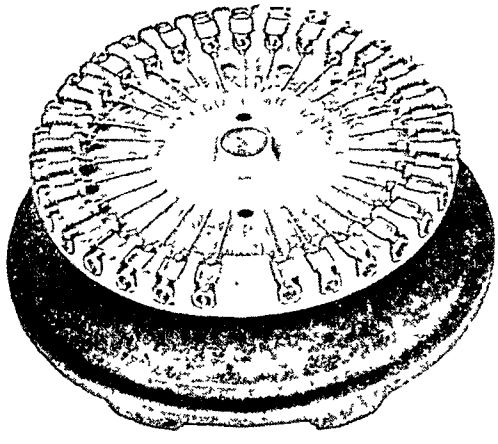
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1. Kunde, M. M.: The Role of Hormones in the Treatment of Obesity, Ann. Int. Med. *28*:971 (May) 1948.
2. Gastineau, C. F.; Rynearson, E. H., and Irmisch, A. K.: Treatment of the Fat and Lean, J.A.M.A. *139*:86 (Jan. 8) 1949.
3. Elvehjem, C. A.: The Vitamin B Complex, Council Reports, J.A.M.A. *138*:960 (Nov. 27) 1948.

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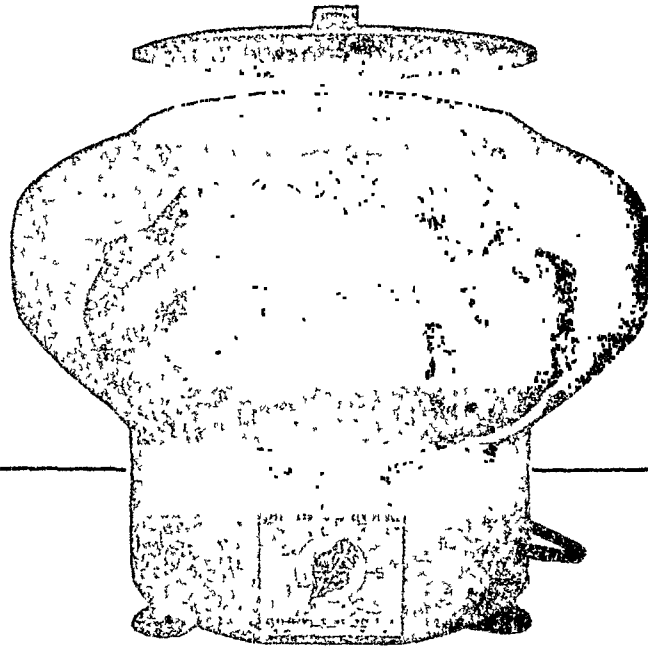
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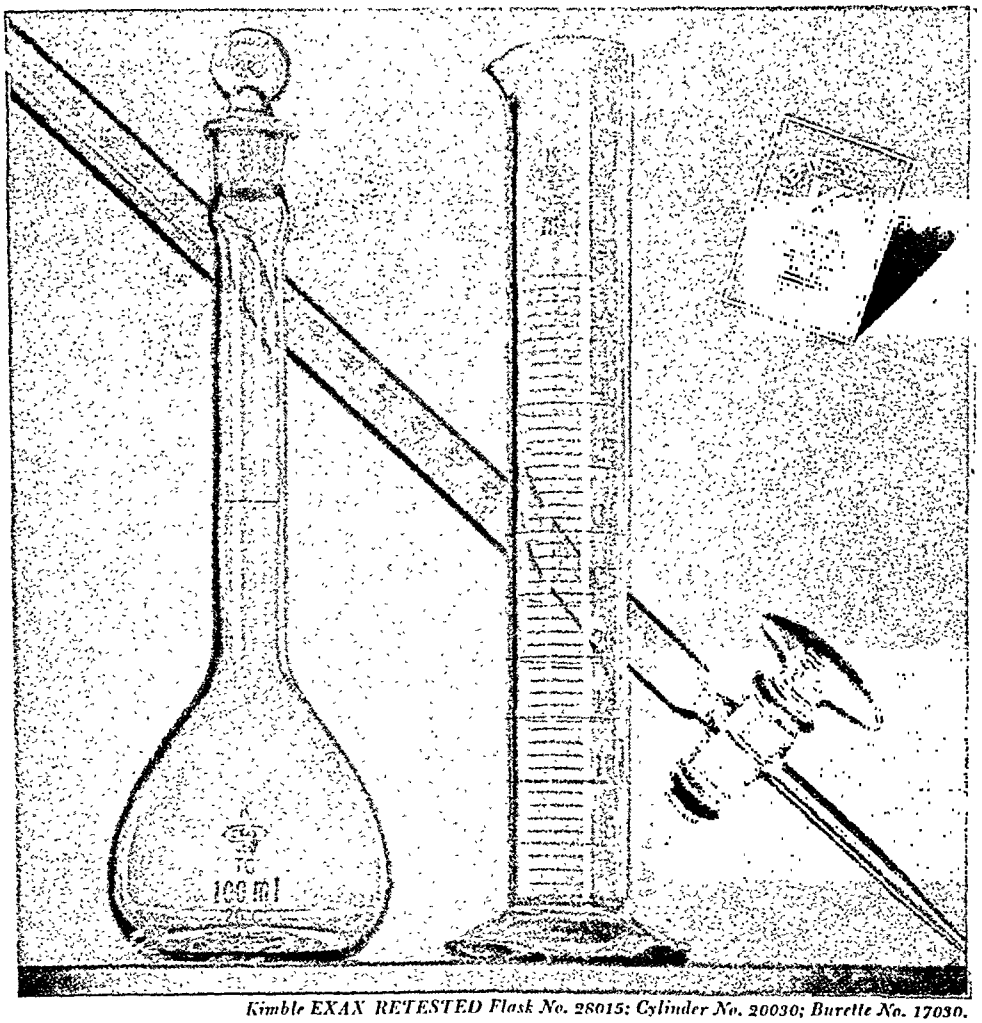
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Official Monthly Publication of the American Public Health Association

Volume 39 — September, 1949 — Number 9

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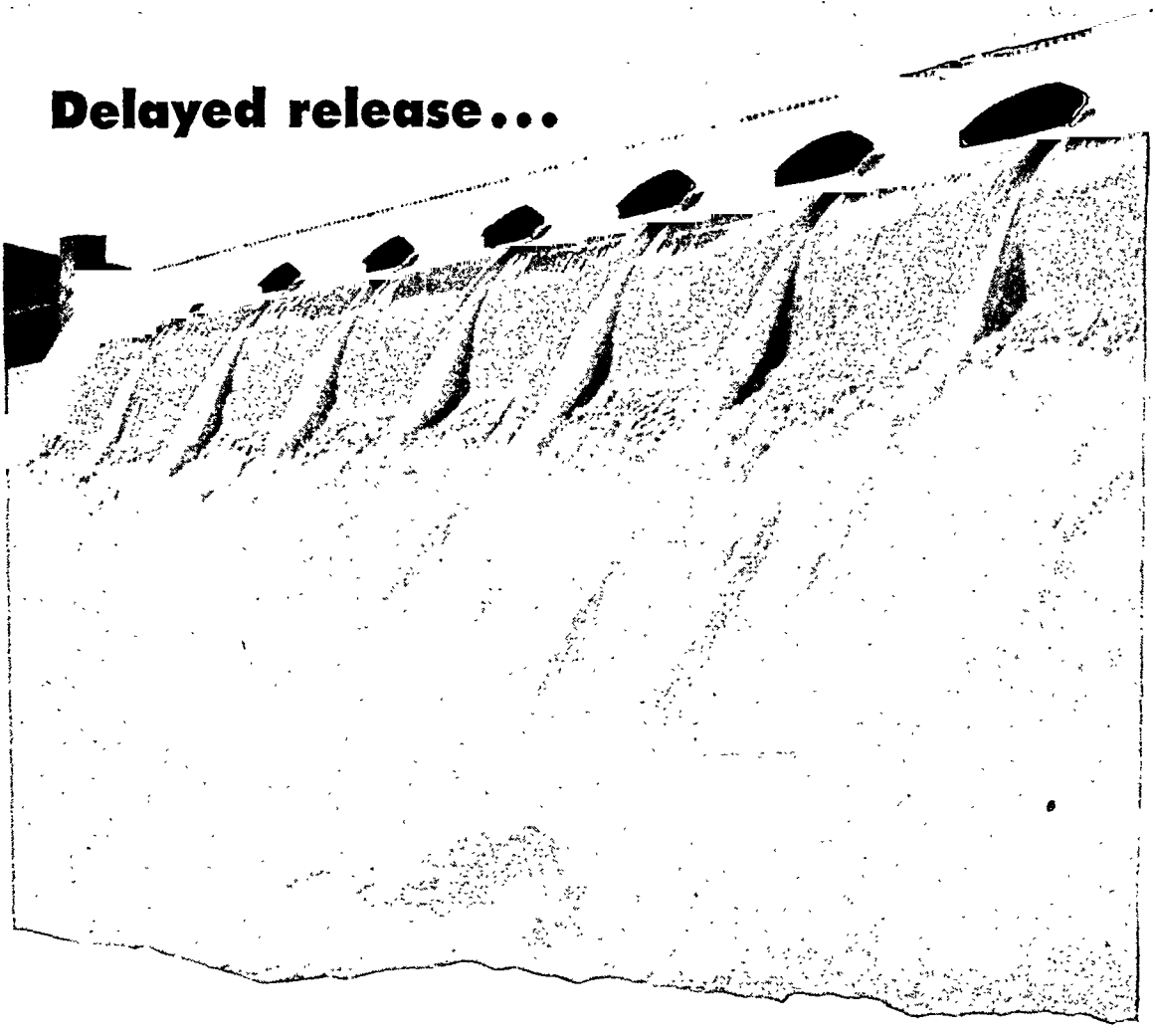
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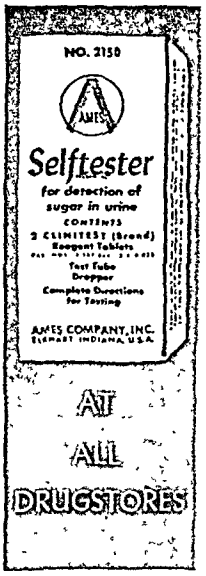
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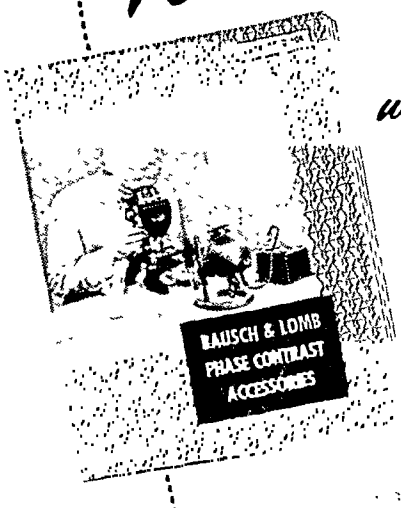
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† Wilkerson, H. L. C. and Krall, L. P.: Diabetes in a New England Town, Journal of the American Medical Association, *135*:209 (Sept 27) 1947.

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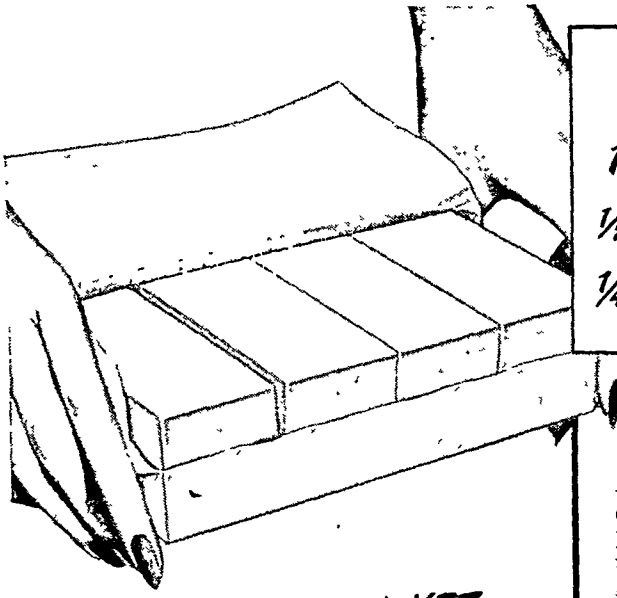
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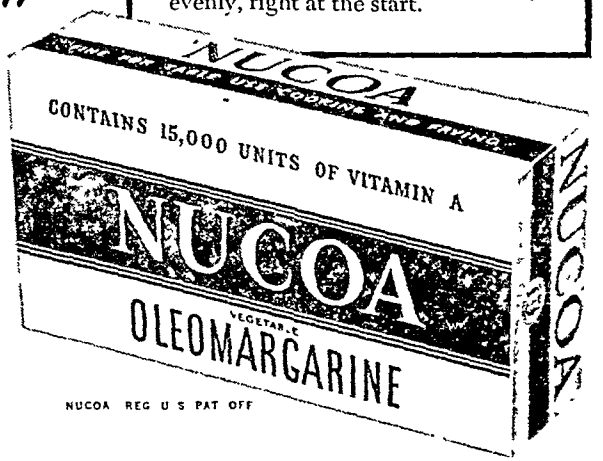
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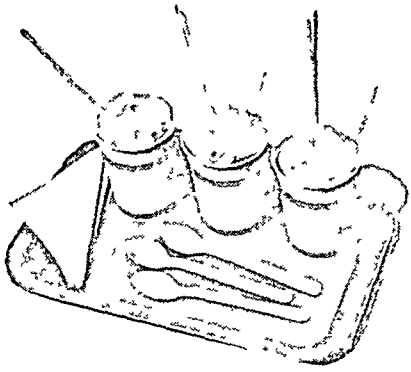
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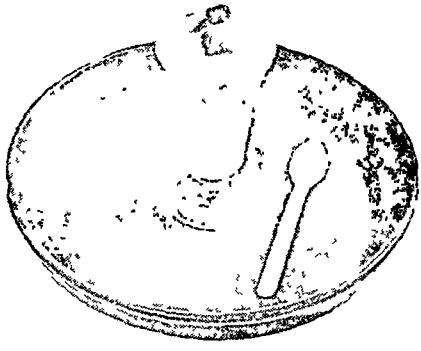
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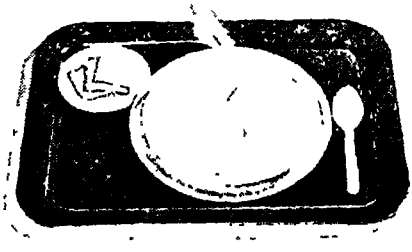
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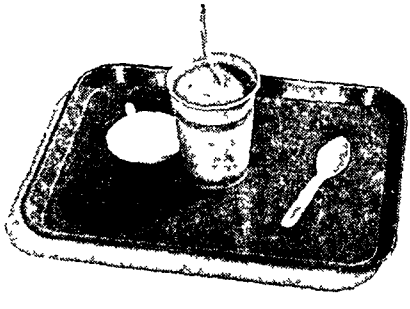
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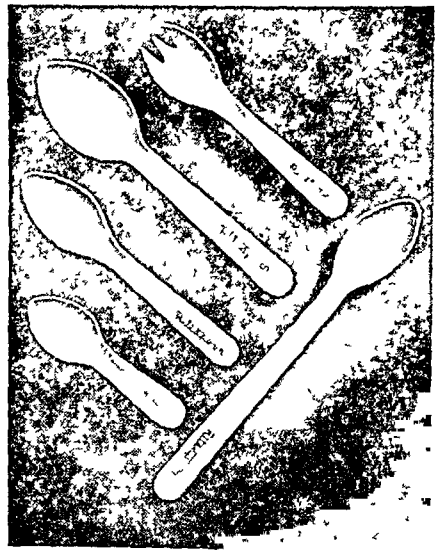
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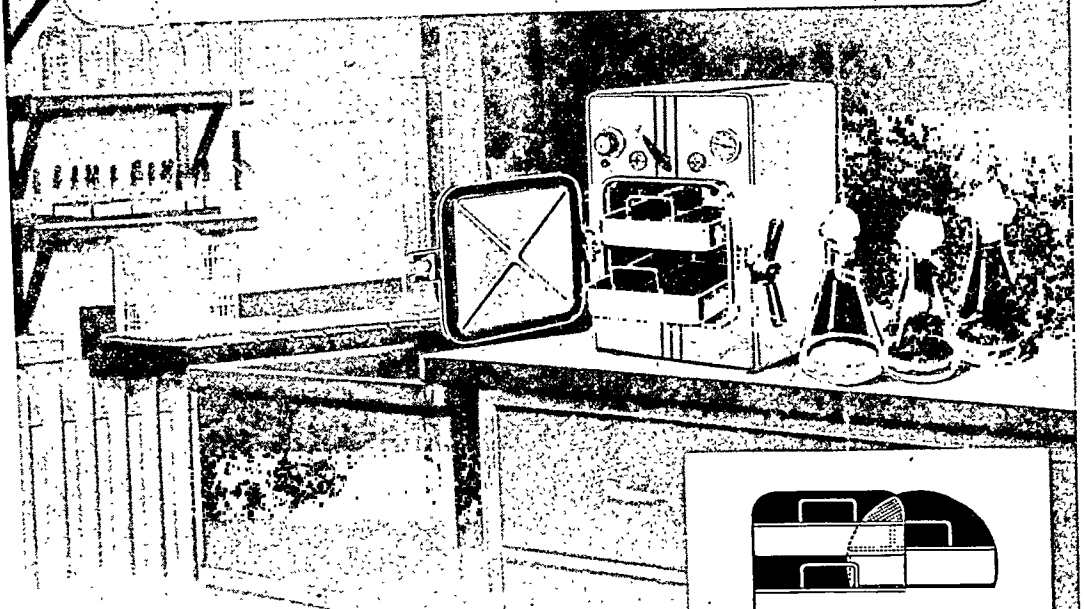
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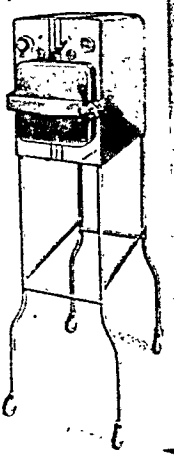
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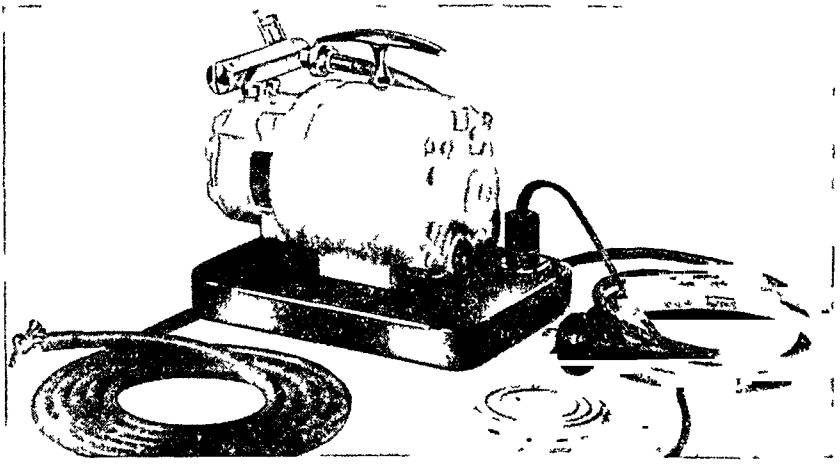
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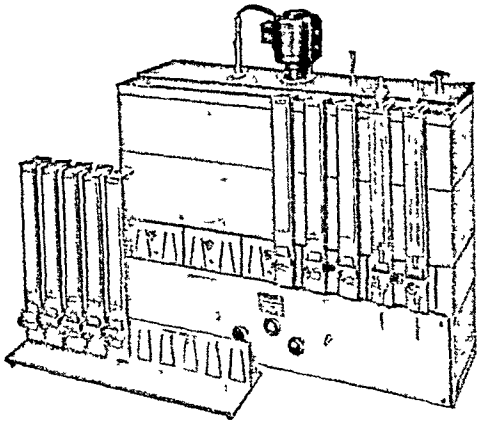
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MANOMETER HOLDERS: All manometer holders are made of stainless steel, properly re-inforced to provide rigid supports for the glass manometers. They have a built-in guard which prevents breakage while manometers are operating. Each manometer holder has 1 clamp for adjusting the liquid level.

The new "Precision" 10-unit Barcroft-Warburg apparatus is designed to provide laboratories engaged in Barcroft-Warburg work with an accurate time saving and space saving apparatus that will aid technicians in obtaining the best possible results in the shortest period of time.

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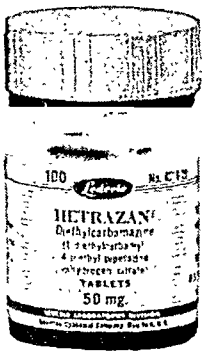
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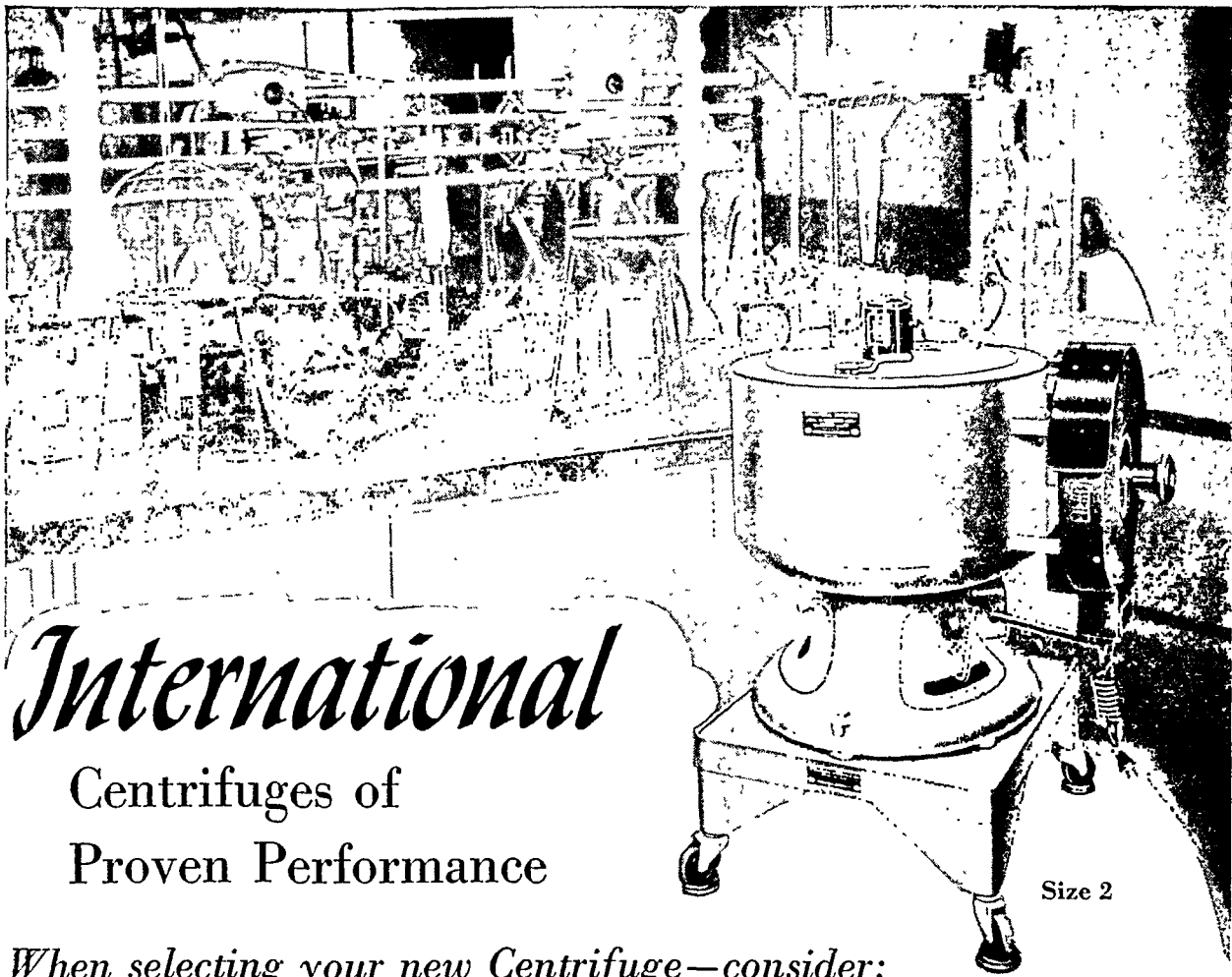
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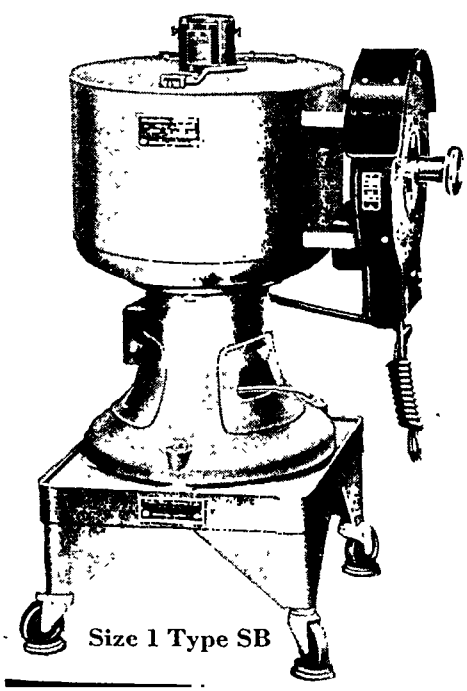


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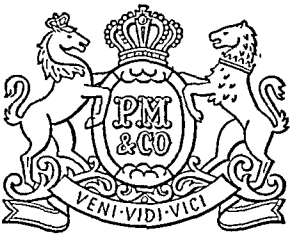
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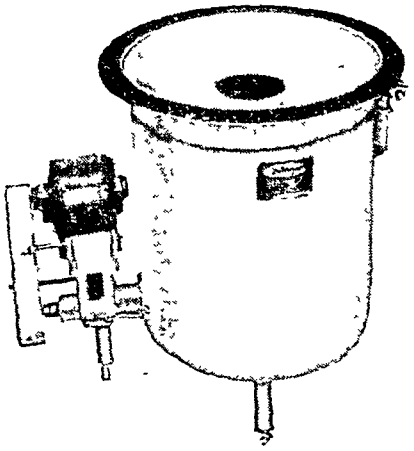
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**Reprints on request:

Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154; Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60; Proc. Soc. Exp. Biol. and Med., 1934, 32,241; N. Y. State Journ. Med., Vol. 35, 6-1-25, No. 11, 590-592.

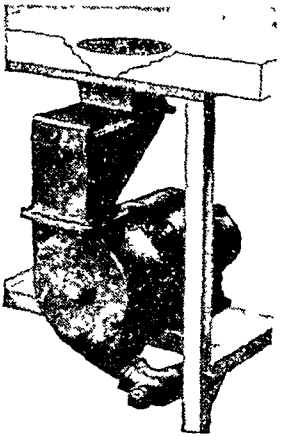
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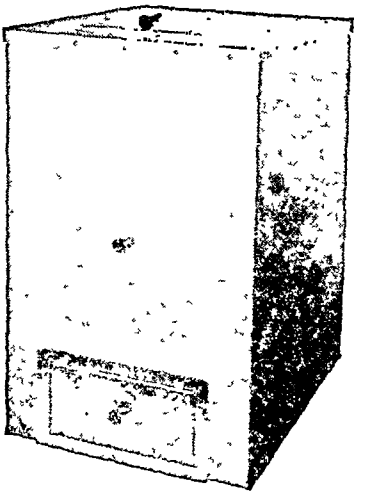


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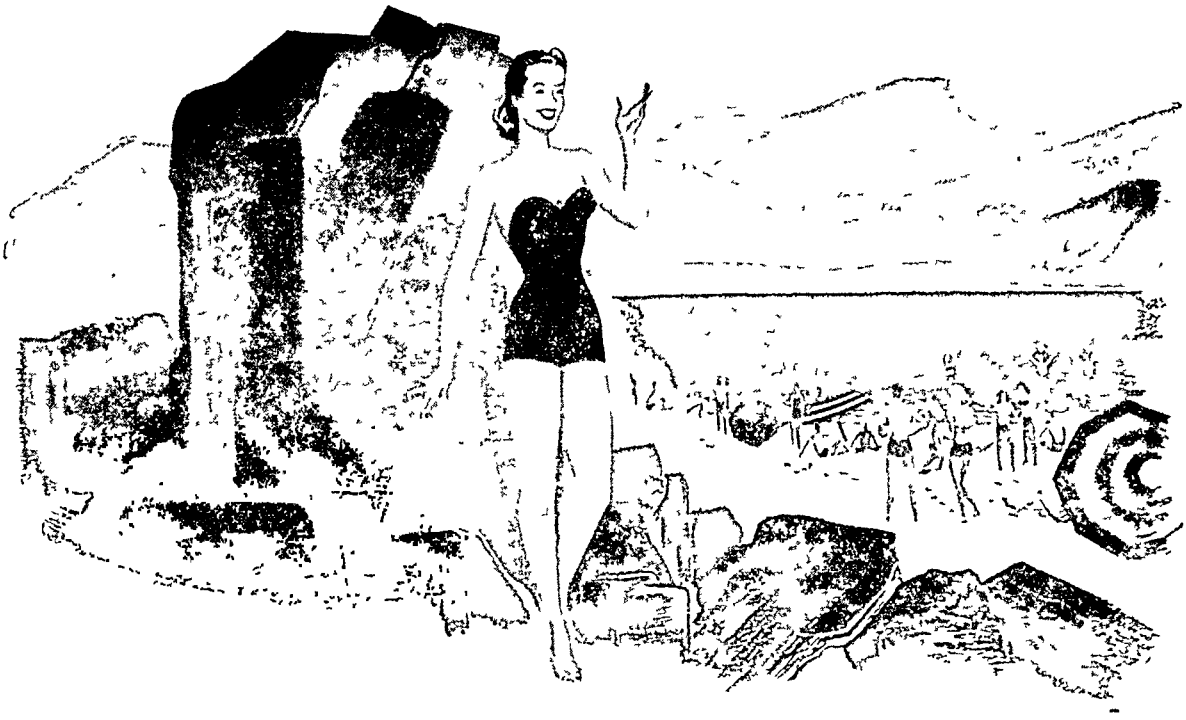
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1 Wooldridge, W E The Gamma Isomer of Hexachlorocyclohexane in the Treatment of Scabies, J Invest. Dermat *10* 363 (May) 1948

2 Niedelman, M L Treatment of Common Skin Diseases in Infants and Children, J Pediat *32* 566 (May) 1948.

3 Cannon, A B , and McRae, M E Treatment of Scabies, J A M A *138* 557 (Oct 23) 1948

4 Goldman, L , and Feldman, M D Human Infestation with Scabies of Monkeys, Arch Dermat & Syph *59*. 175 (Feb) 1949

5 Fox, E C , and Shields, T. L.: Résumé of Skin Diseases Most Commonly Seen in General Practice, J.A M A. *140* 763 (July 2) 1949.

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The effects of the four different breakfast practices were studied under strictly controlled conditions using six young women graduate students as subjects. Since reaction time is particularly sensitive to alterations in physiologic conditions, this test was adopted for detecting changes in the mental acuity states of the experimental subjects. The findings of the 800 calorie breakfast period were adopted as the standard base of reference.

Conclusions drawn from this important work are:

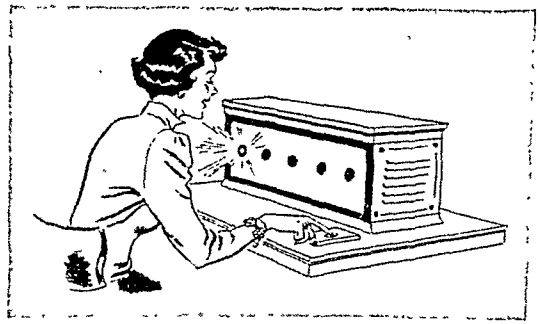
1. When no breakfast was the morning practice, a notable *increase* resulted in the duration of the simple and choice reaction times.

2. Habituation to coffee only induced a similar *increase* in reaction time.

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Although not stated in the published report, the findings forcefully intimate that during the late morning greater mental acuity results from adequate breakfast practices than when omission of breakfast or coffee only is the morning habit.



The presence of this seal indicates that all nutritional statements herein have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

*Reprint of the research findings referred to will be sent on request.

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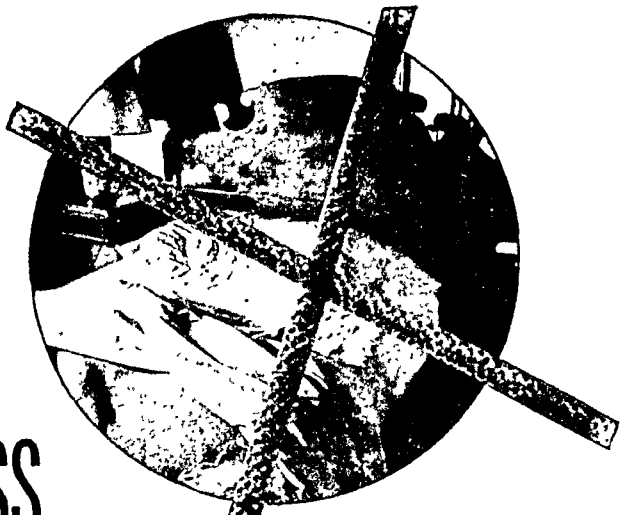
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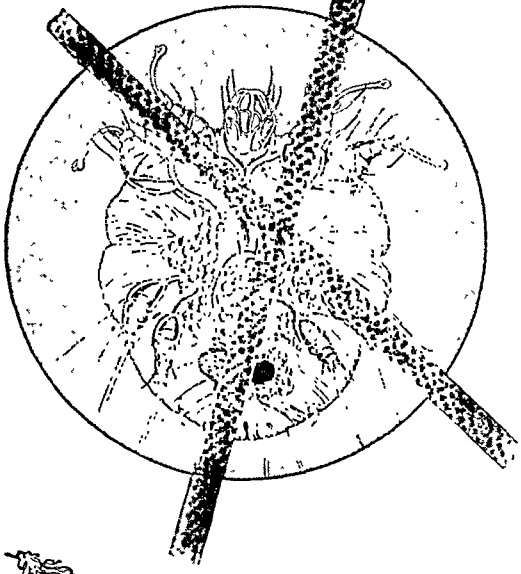
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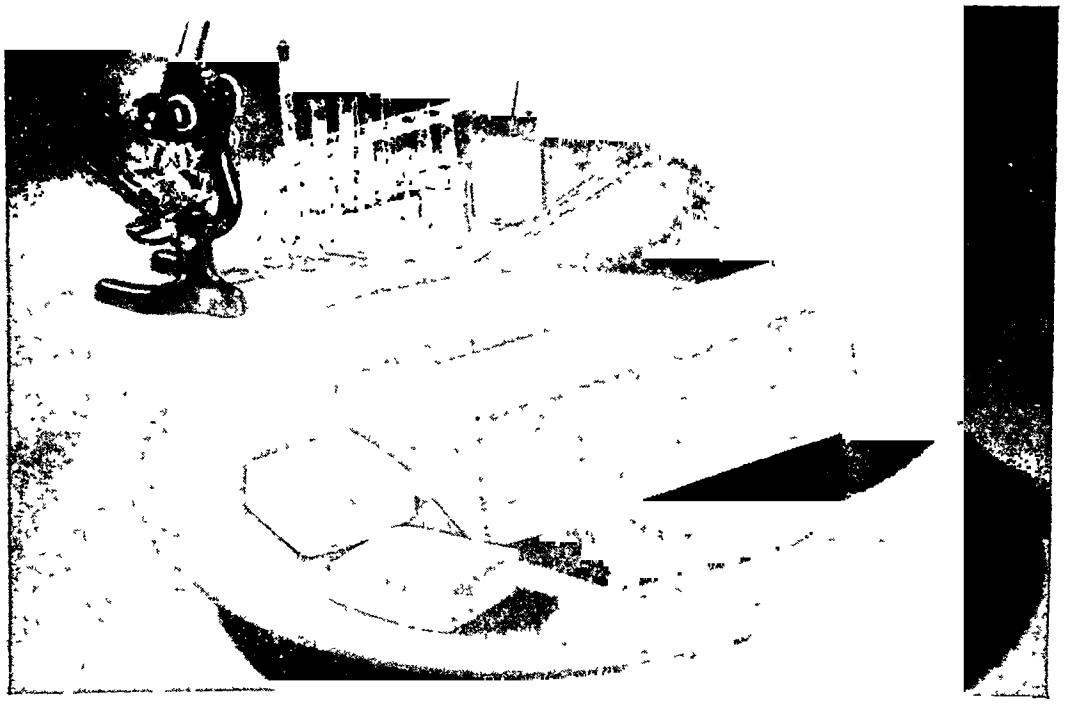
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**Glances at Butter Research*, National Dairy Council, 1948

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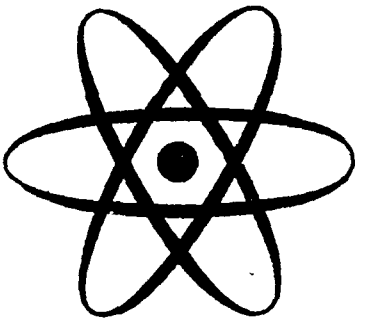
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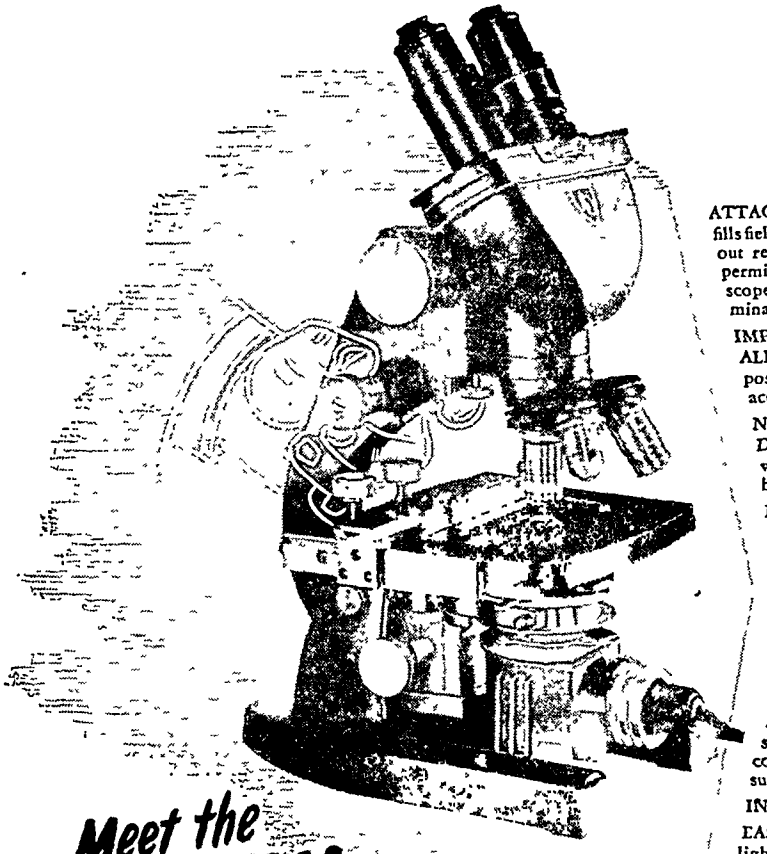
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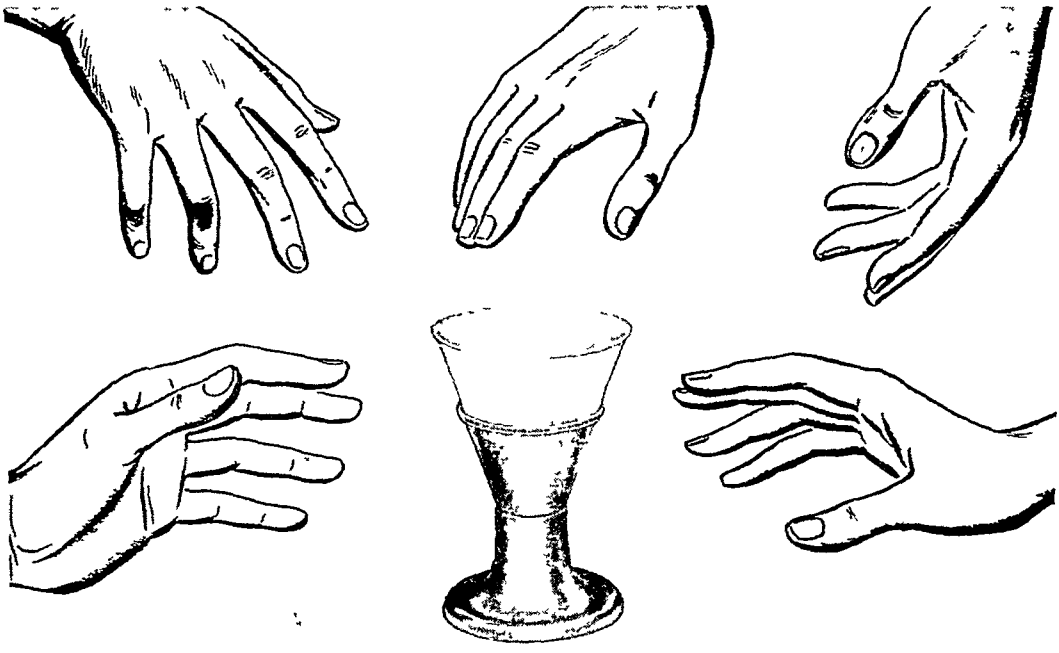
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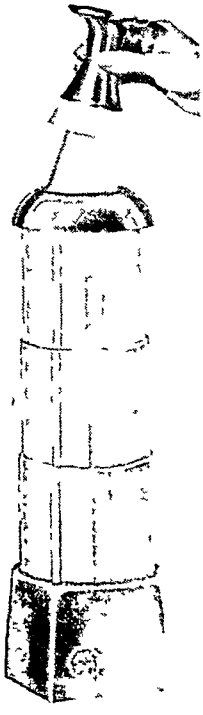
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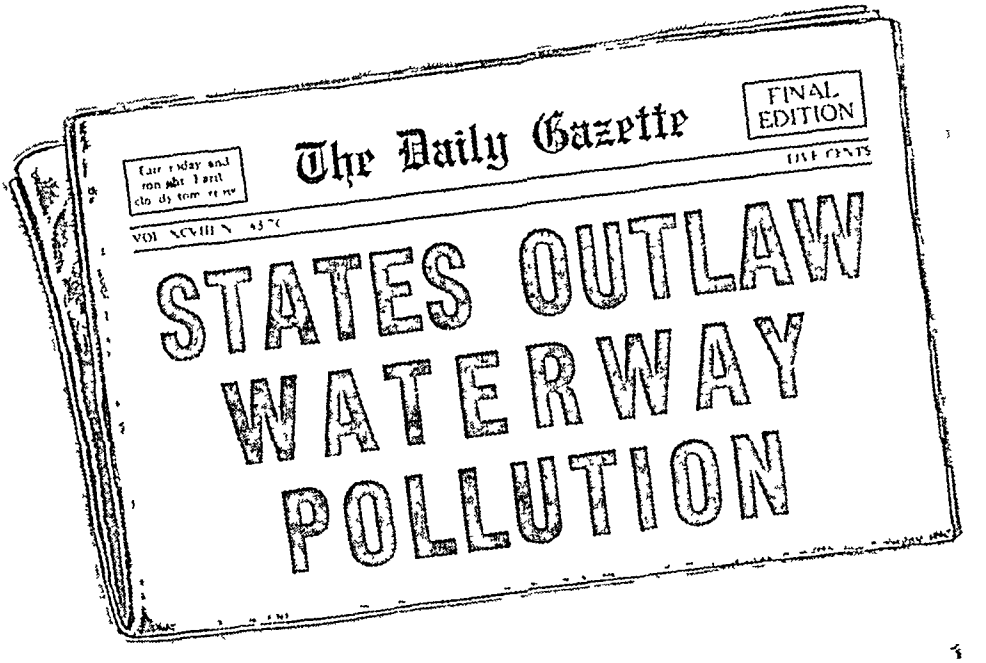
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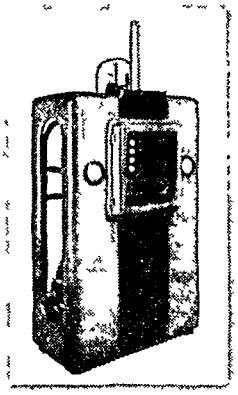


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American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 September, 1949 Number 9

Facts and Figures about Child Health in the United States*

A Critical Appraisal of the Academy of Pediatrics Study of Child Health Services and Pediatric Education †

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THE habit of seeking the postmortem room is fixed in the well trained physician. There, spread before him and his colleagues, he may see the confirmation of his theories, but also the errors of his judgment and skill. Now that the Academy study is complete it is well for those who were an integral part of its design and execution, as well as for those who can see it from outside the working circle, to review what was or was not accomplished by this vast undertaking.

If one were to generalize about the study, one would say that its chief contribution is documentation of earlier impressions. It turns opinions into facts which were anticipated. That many children have inadequate medical care, that maldistribution of doctors and hospitals exists, that many doctors who care for children are poorly trained in this care—all these were known in a general way to people who were well informed. Now these opinions are backed up by a wealth of data. Chapter and verse can be cited. The inadequacy of child health services has been taken out of the area of controversy and put in the realm of established fact.

RESUMÉ OF FINDINGS

The results of a 3 year nation-wide study, covering all physicians and dentists in private practice, all hospitals caring for children, and all community health services of certain categories, cannot be covered in a few brief paragraphs. Only the highlights are given here.

* Special Review Article, prepared at the request of the Editorial Board.

† As a basis for post-war planning, the American Academy of Pediatrics in 1945 undertook a nation-wide study of child health services, with the co-operation of the Public Health Service and the Children's Bureau of the Federal Security Agency. The study was completed in 1948, and the report published April, 1949, by the Commonwealth Fund.[1]

The study showed that children in or near cities receive far more medical care than children living away from cities, and that similar discrepancies exist among states and among the regions of the country. Not only is the city child at an advantage in amount of care, he is also at an advantage in kind of care. Available to him are relatively more specialists, more and better hospitals, more clinics. Since no area of the country appears to have too much medical care designed to meet the needs of children, these findings show clearly the need for more doctors, more hospitals, and more community health services for them.

In addition to the fact that there are not enough hospital beds for children, the study shows that much hospital care is of poor quality. A large part of the hospital care of children is given in hospitals where infants are not separated from older children and where there is no house staff. Often—in the case of one-fourth of the admissions—children are not even separated from adults. Large numbers of infants are born in hospitals which do not have staff and facilities to safeguard health. Thus, 61 per cent of hospital births are in hospitals that have no new-born nursery for sick infants separate from well infants, and 40 per cent in hospitals with no house staff.

To the city dweller, familiar with the hospital clinic, it is surprising to learn that for the total United States only 16 per cent of general hospitals have an outpatient department. In the small community such clinics are almost nonexistent.

One of the common beliefs—that community health services fill the gap for those unable to obtain private medical care—was shown to be groundless by this study. Only 1.7 per cent of the total volume of medical care rendered to children is given through community health services.

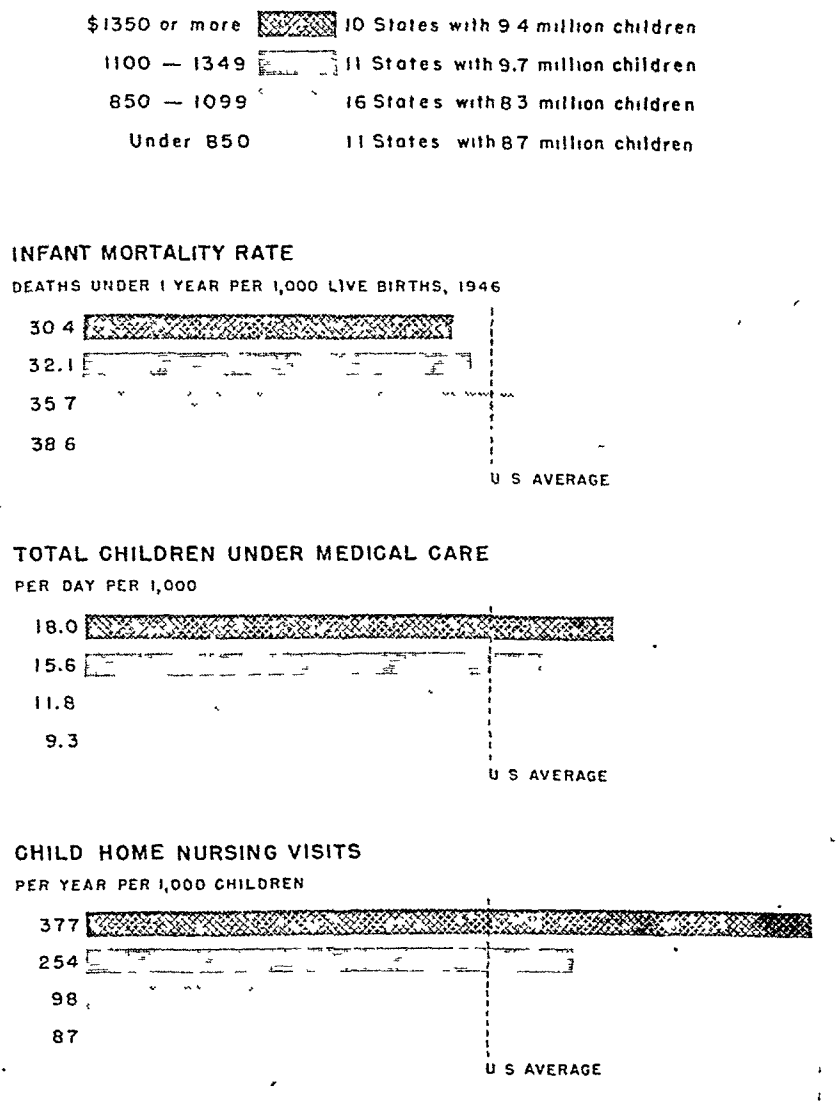
Well child conferences are often thought of as a major part of child health supervision. During the year of the study there were 160,000 sessions. Yet 2,000 counties, representing 31 per cent of the children under 5 years of age, had no well child conference. For the country as a whole, only 6 per cent of the children under 5 received service in well child conferences. Variations from state to state both in amount and in kind are tremendous.

School health services which are supposed to carry on where well child supervision leaves off were almost as inadequate. Using as evidence of a school medical service the very low criterion of any examinations (other than for athletic teams) done at the school by a physician, we find that over half the counties had not one public elementary school with such service. These counties represent 22 per cent of the children in the 5–14 age group.

For years, students of the question have been saying, without proof, that the pediatrician sees relatively few of the nation's children. The study adequately assesses the relative importance of the general practitioner and the pediatrician in terms of amount of care given children by each. Out of 100 visits to children, 75 are made by the general practitioner. He carries the bulk of well child supervision as well as sick care. In preparation for these tasks, his training is often inadequate; 17 per cent of the general practitioners had received no hospital training of any kind, and nearly half had had little or no hospital training in pediatrics.

If one has time to read only a small part of the report, we suggest Chapter 7, for here is the interpretation of the meaning of the study. The states have been divided into four groups by economic status and the major findings of the study portrayed graphically in relation to these groupings. The relationship between quantity and quality of

HEALTH SERVICES FOR CHILDREN IN RELATION TO THE ECONOMIC LEVEL OF THE STATES



Adopted from Chart 77 in "Child Health Services and Pediatric Education," Report of the Committee for the Study of Child Health Services, The American Academy of Pediatrics; published by The Commonwealth Fund.

care and economic status is so striking and so consistent that one cannot escape the implication. The three charts in Figure 1 portray this relationship more clearly than can be done by words. Full documentation is given by this chapter to one of the causes for lack of medical care to children as formulated by the Academy before the study, namely, "The parents are unable to pay for services."[2]

In addition to these general findings, many new pieces of information were produced by the study. Strangely enough, no prior data existed on the number of children cared for in hospitals, or on the days of care given to children. The fact, not appreciated before, that more days of care are now given by hospitals to new-borns than to sick children is an important item for planning. The Academy study gave us our first nation-wide figure on the incidence of breast feeding[3] and on the fatality rate in hospitals among infants born prematurely.[4] It gave the first comprehensive figure on average daily case load of general practitioners and of pediatricians throughout the total United States and by regions. For the general practitioner, the average number of patients seen in one day is 16.4. This average is not of his working days but of all days in the year—Sundays, holidays, vacations, and sick leave included. Many more than 16 patients must be seen on some days to counterbalance the days when no patients are seen. Twenty per cent of the general practitioners recorded more than 30 visits on the day of their report, and 5 per cent reported more than 50 visits. It is quite apparent that, if the volume of medical care is to be increased in this country without reduction in the present quality of care, more physicians must be produced. Hundreds of similar individual items could be listed about which data were obtained for the first time on a nation-wide scale.

UNIQUE TECHNICAL CONTRIBUTIONS OF THE STUDY

Technically there are many interesting aspects of this study. It was the first nation-wide study of health services for any segment of our population. The determination to make it a mass survey was taken on the grounds that in addition to gathering facts for national planning, it had among its purposes also the enlisting of wide professional and lay participation and the gathering of data for local planning. For the purpose of obtaining national data, a sample carefully selected and recorded by well trained workers would have yielded more accurate results. The state material, gathered as it was by people of widely varying competence, even though on standard forms and with standard directions, shows great variability. Some states did not collect all material, and others elected to get the data in their own unique way. On the whole, however, the volume of the material is such that variations and errors are lost in the mass.

The collection of a one day record from a large percentage of the practising physicians and dentists is a real achievement. Mail questionnaires requiring the recording of data usually yield a low percentage of returns. Due to the activity of pediatricians in local areas, coöperation of the doctors was excellent. Under the guidance of an expert statistical advisory committee, supplemental studies were set up to obtain seasonal and non-reporting coefficients which have made this material sound and usable.

Another unique contribution of the study to public health methods warrants special mention. Early in the undertaking it became apparent to the group responsible for the analysis of the material that some index would be needed to express quantity of care received by children. For this purpose the term "total volume of medical care" was

coined, representing the simple addition of number of physicians' visits, number of days of hospital care, and number of clinic visits. This index was expressed in terms of an average day and related to the child population for the nation, or for states, or for selected areas. Because the study obtained data on which total coverage was computed—visits by all physicians, and all hospital and clinic data—such a device was possible. This relatively simple technique, though admittedly weak from some standpoints, nevertheless, provided a basis for comparing the amount of care given in different states and areas and served the purpose of a yardstick in lieu of standards of care. Through this device deficiencies can be shown indirectly. For example, the rate of children under medical care on one day per 1,000 children in the population for New York was 21.9, for Mississippi 7.7. A similar device for dental care showed 7.2 children per 1,000 under dental care in one day in the state with the highest rate; only 0.9 at the other end of the scale.

The technique of organization and administration of the study has been dwelt on in many presentations, but is worth repeating here. Historically, this is the first mass venture in which private practitioners of medicine and government agencies coöperated. This was not, however, as some suppose, a *joint* undertaking between government and voluntary groups. This was the Academy's study, with the technical (and financial) coöperation of the Public Health Service and the Children's Bureau. In many ways it may have been better so, for this plan placed responsibility on the physicians of the country for finding answers to many of the perplexing questions of how to get more and better medical care to children. The element of coöperation in this fact finding venture may have served to develop a warmer and more trusting relationship between government and private medicine. Further benefits of the joining of hands of private enterprise and agencies responsible to the public should be explored.

Contrary to the practice in most large studies, this one has processed and made available all the usable material gathered. Volume I [1] published in April, 1949, and Volume II [5] to appear shortly thereafter contain all the pertinent material except a few special studies which have appeared or will appear soon as special papers. Most studies end with quantities of items on punch cards, which somebody plans sometime to do something about. With the close of this study, all the cards could be destroyed without loss to the public of any significant items. In addition, state material in considerable detail has all been returned to the states for local use and for the writing of state reports.* How useful this state material may be yet remains to be seen. Because all states followed in general the same pattern in the collection of data in order to produce the national picture, the material is less useful to some states than if it had been designed to meet their special needs. The "high level" states might have profited individually by concentrating on studies of special problems, but, had they done so, at the neglect of the basic material the total study for the country would have been less valuable.

PEDIATRIC EDUCATION

The section on pediatric education is less unique than the study of services, for it is not the first study of its kind. Yet it far outranks previous studies of medical education in its completeness and its focus on quality of teaching, though covering only one specialty. Unlike the rest of the Academy study, this part was carried out largely by one

* As of May 1, 1949, 9 state reports had been published, and at least 14 others were known to be in progress.

person. As in the rest of the study, yardsticks or criteria of adequacy were not developed. No attempt was made to describe what constitutes good pediatric teaching. A rating scheme was developed and the schools were ranked accordingly, though not identified. Each school has been informed of its rank and of the items which went into its making, so that the responsible persons may take steps to bring their schools in line with the top ranking ones. Much information was obtained of a subjective nature on the character of pediatric education, on new practices in teaching, and on student reactions. It is hoped that the Academy will make this available as the impressions of a competent observer even though not based on quantitative data.

WHAT THE STUDY DID NOT ACCOMPLISH

On the other side of the ledger, may be itemized some of the things the study did not do. On hearing the study described, one gathers the impression that some people think all the data necessary for future planning have been obtained. Vast as the undertaking was, it has but scratched the surface of what we need to know. There is, for example, very little material in it on quality of care except as it shows up in quantity. Attempts were made to gather data on this aspect but quality lends itself less readily to appraisal than does quantity. Techniques for determining quality of medical care need to be developed for use in studies of this kind. If doctors are to insure high quality of care in public programs, methods for appraising quality of care must be developed.

Perhaps the major lack in the report is the failure to employ standards of care as a point of reference. The Committee for the Study of Child Health Services decided not to attempt to say what constitutes good care. The study was intended to report what exists, not what the deficiencies are. For this reason the text was prepared somewhat in a vacuum. How many doctors there are per 1,000 children, or how many hospital beds, or how many public health nurses have less meaning than they would have, if measured against how many of each are necessary for good practice. Without benefit of standards, the group analyzing the material had to utilize the highest area, largest amount, or greatest number as yardsticks. To those who would like comparisons of the present state of child health services with a reasonable or possibly attainable optimum, the report is not very satisfying.

The study, as is only natural in such a comprehensive undertaking, has areas which are less valuable than others. The poorest section is undoubtedly that which deals with community health services. It has been said repeatedly that this is a study "of physicians by physicians." Naturally their greatest interests and emphases were private practice and hospital care. The community health services section completed the picture for total volume of care, but hardly goes beyond that. Each item in this section—school health services, public health nursing, mental hygiene, and so forth—needs to be the subject of a special study by the groups who are concerned with these programs. Readers of the report should bear in mind that the data gathered on these programs were for the purpose of rounding out the total picture and were in no way meant to represent comprehensive studies of these activities.

Data on nursing are almost completely lacking, as are those on health education. The Academy study was limited to services and facilities. One would hope for a companion study concerned with recipients of care.

RESULTS TO DATE

As an instrument for arousing public interest, the study has been extraordi-

narily effective. In all parts of the country, people, doctors, and laymen have looked at their health services for children and by the very act of appraisal have been moved to do something to improve them. No measure can ever be made of the extent of the changes in local communities. The questionnaires themselves, by the questions they asked about hospital techniques, are said to have produced changes in care. One state has used the information from the study effectively in securing legislation for a new children's hospital. State committees are making recommendations based on study findings for improving their services at the state and local level.

PLANS FOR THE FUTURE

This was a nation-wide study, and as such should be expected to produce national planning. State reports have given facts and, on the basis of these facts, have made recommendations. The national report was produced without recommendation, on the assumption that the Committee for the Improvement of Child Health * would take leadership in the field of planning.

The study is now complete and the country eagerly awaits the blue print for further action. The mere presentation of fact is one way of initiating progress, and the Academy of Pediatrics is to be congratulated on having furnished the facts. But someone must use these for constructive planning. It is clear that more doctors, better training for them, more equitable distribution of services and facilities are needed. But how? The Committee for the Improvement of Child Health will be called upon to do more than generalize. They will be expected to come out, and soon, with a long-range plan, with priorities of course for action. Their suggestion [6] that we need more doctors is a first step, but many other questions about the next steps will undoubtedly soon be asked by professional and citizen groups of all kinds who are interested in improving child health, and perhaps may even be asked by the taxpayer who in one way or another supported the study.

The plan for action must be broad in scope and have real substance if it is to accomplish its purposes fully: not merely to improve the health of children here and there as circumstances readily permit, but to assure that children generally are provided with all necessary health and medical services. Increasing the supply and improving the distribution of doctors well trained in child care appear to be the first and most basic steps to be taken, but concurrently provision must be made for overcoming economic, educational, and other barriers to better care for children. Any system devised to meet the deficiencies in "quantity" of services rendered to children, which merely succeeded in spreading mediocre "quality" services more evenly, would be of questionable benefit. A visit to a physician's office or a health conference may or may not be rewarding to mother or child. A harder task for those seeking action will be to assure that new services are good services and contain the seeds of self improvement so that they will go forward with advancing knowledge. Just as the original $10,000 provided for initiating the study of Child Health Services grew into more than $1,000,000 for carrying it to completion, so it must be anticipated that the groups now seeking action will require new recruits and expanding support.

* This committee was established by the Academy of Pediatrics with a full-time Executive Director and staff to make recommendations on the basis of the report and to help implement their recommendations.

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Dr. Lombard States Major Cancer Control Problems

H. C. Lombard, M.D., Director of the Division of Cancer and other Chronic Diseases of the Massachusetts State Department of Health, at the recent Amherst meeting of the Massachusetts Public Health Association, listed the following major problems in the field of cancer control:

I. Lack of knowledge regarding the disease—
   1. What occupations subject the worker to carcinogenic agents?
   2. What other activities subject the individual to carcinogenic agents?
   3. Is there a constitutional factor in cancer etiology?
   4. Is the constitution of the individual a factor that will influence his response to therapy?
   5. Why does economic status influence the incidence of cancer and the results of treatment?
   6. Is the milk factor of importance in human cancer?
   7. Why does early marriage predispose to cancer of the cervix?
   8. What habits of the individual predispose him to cancer?
   9. What differences in incidence exist in various geographic areas?
   10. How much of a factor is heredity in the etiology of human cancer?

II. Attitudes of the public regarding the disease—
   1. Fear
   2. Superstitions

III. Sociological problems—
   1. Ignorance
   2. Poverty

IV. Administrative problems—
   1. Lack of qualified personnel
   2. Lack of sufficient funds
   3. Lack of accurate tests for the early detection of all cancers
   4. Lack of sufficient accurate data concerning incidence, end results, etc.
   5. Lack of general understanding that control necessitates the combined energies of clinicians, research workers, and public health personnel
   6. The failure of present methods of indoctrinating all physicians in the early detection of the disease.

The Nursing Home— A Medical Care Facility*

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Deputy Commissioner, Nassau County Department of Health, Mineola, N. Y.

SOCIAL workers know that the demands for medical, nursing, and custodial services outside the individual's own home are increasing.

Care of the chronically ill and aged infirm outside of a private home or a hospital is usually given in facilities that have been termed by Rogers as "nursing infirmaries," by Wagner as "between home and hospital facilities," and by Griffin as "commercial homes."

A nursing home should be a safe, sanitary private or public medical care facility, operating under health department licensure and having medical services affiliated with the staff of a secondary hospital center. Personnel of a nursing home should be prepared by training and experience to render, under medical supervision, preventive, medical, health, and social services based on the total needs of sick, infirm, or handicapped persons, not requiring hospitalization. The goal of nursing home care should be to make available to the patient the maximum opportunity for rehabilitation, and, whenever possible, resumption of a happy, economically useful life in his own home.

Few privately operated nursing homes in the metropolitan area of New York presently meet all of the requirements contained in that definition. Actually, they are rarely if ever adequate to meet the needs. All too frequently these homes provide a poor quality of care. Needs of the older persons in them are seldom the basis for service. The cost to the individual (and to the taxpayer, since public recipients are commonly placed in these homes) bears little if any relationship to the quantity and quality of care given. Nursing homes are almost invariably conducted in large buildings, usually constructed of wood or other combustible material, that were intended for some other use, especially as single family dwellings. Operators and employees are rarely required to be qualified through training and experience in meeting the medical-social problems of the chronically ill. Nurses of one kind or another usually operate nursing homes. Commonly such homes provide only shelter, board, and some nursing care.

Potter[1, 2] and Jarrett[3] have discussed other shortcomings of presently available facilities of this type, and they have also suggested remedies.

Widespread support is developing for several basic concepts regarding care for chronically ill persons who cannot or should not remain at home, and who do not require hospitalization. The total needs of long-term patients can be met only if homes for the aged, boarding, convalescent, and nursing homes are available to them. Both tax supported and privately owned facilities of these types are now generally insufficient to meet the demands for care outside the home and hospital. Some communities are now operating public nursing homes.

* Presented at a Conference of the Area Supervisors of Welfare Institutions, New York State Department of Social Welfare, New York, N. Y., December 9, 1948.

Many other cities and counties are planning such facilities. These planners should consider the effect of an aging population on the need for nursing home care. Barring wars, life expectancy is certain to lengthen appreciably in the future. This means that persons 45 years and over will comprise an increasingly larger proportion of the total population. The prevalence of chronic disease becomes greater as a population ages. The ratio of women to men in nursing homes is presently about 4 to 1. An older married woman is likely to live nearly 8 years longer than her husband.

To make an effective and necessary contribution to the general medical care program of a community, all types of "between the home and hospital" facilities should meet minimum standards, be regularly inspected, serve the total needs of the persons in them, and conserve the financial resources of patrons by basing charges on services actually required at a given time.

The Public Health Ordinance of Nassau County, New York, provides for the licensure of nursing homes. It became effective October 1, 1941. The provisions are essentially the same as those adopted previously by New York City. That ordinance falls short of being a model. So do most others having the same purpose. Whoever attempts to improve such ordinances should keep several general considerations in mind.

First, all types of facilities caring for the sick, infirm, handicapped, and aged, either for a consideration or at the expense of the taxpayer, should be subject to inspection and supervision by the health department.

Second, provision for probationary licensure of "care" homes is an essential inclusion in a licensure law. The health authorities in Nassau County, New York, agree with Potter and others that this is an effective method of raising standards.[1] The public, operators, and licensing agency benefit. This device reduces the number of illegal operators, makes more facilities available, enables the licensing agency to make education rather than enforcement the keynote of supervision, and helps to establish the important relationship between cost of care and quality of services.

Third, it is unrealistic and uneconomic to make the minimal standards, including fire and safety requirements, identical for supervised boarding homes for older persons and for nursing homes. The condition of the patients in them is the best criterion for regulations. The ordinance should make it a violation for an operator of a boarding home for older persons to accept or to keep any person who is unable to get about without help, or who has a demonstrable physical or mental disease, disability, or infirmity which, in medical opinion, constitutes an indication for attendant or nursing service. The ordinance should make it a violation for an operator of a nursing home to accept or to keep any person who, in medical opinion, requires hospitalization. These requirements take into account the fact that the condition of patients changes with time.

Fourth, all nursing homes require medical services affiliated with the staff of a secondary hospital center.[4] Additional benefits accrue to patients and facilities when both hospital and nursing homes have affiliations with supervised boarding homes for older persons. The advantages of affiliations between all types of "care" facilities show up best when one compares the total services now generally given with those available under that plan. An affiliation of a nursing home with a hospital makes possible the development of a smoothly operating mechanism for referral of patients from one facility to another. This two-way movement of patients between facilities helps to assure the chronically ill of services geared to need, and is an essential step in freeing hospital beds

now occupied by long-term patients, who do not require hospitalization.

Another advantage of affiliation is the opportunity which it affords for training all types of personnel giving care to chronically ill persons. If the community has a specialized chronic disease hospital, that institution has the major responsibility for organizing and conducting such a training program.

Under existing circumstances, the determining factor in the placement of patients in "care" facilities is the availability of a bed anywhere. Under an affiliation plan, welfare departments secure admission of public recipients to a hospital, or to its outpatient department. The medical staff of the hospital and the welfare department determine the total medical-social problems of the patient, outline a program based on those needs, then the welfare department recommends the placement of the patient accordingly. Periodically the medical staff of the hospital and welfare case workers reëxamine these persons in order to keep the regimen and placement in line with their changing conditions. Whenever an individual in a nursing home requires diagnostic and specialist services, full use is made of total available community resources. This arrangement makes possible optimal services to the patient at the lowest possible cost. The medical staff of the hospital having affiliation with a nursing home functions in that facility exactly as it does in the hospital situation. Private patients can have these same advantages.

This arrangement is advantageous to the nursing home because (1) it facilitates a two-way flow of patients between the hospital and nursing home; (2) it identifies and integrates such homes with the general medical care program of the community; (3) it provides a means for the training of attendant and nursing personnel of such homes, thus assuring the operators of an adequate supply of competent personnel; and (4) it improves the quality of the preventive, medical, and health services in such homes.

Since nursing homes are medical care facilities, the important consideration is the quality of the medical, preventive, and health services rather than the facility itself.

The majority of licensure laws now in effect do not set minimum standards for medical services in nursing homes. One exception, which merits study, is Ordinance No. 2467 of the City of Fort Worth, Tex.

Experience points to the need for covering all types of medical care facilities by licensure laws. New York State does not have such legislation. In 1946, 8 states had such legislation. In all of them, the health department is the licening agency.[5] Exemption of any "care" facility from the requirements of licensure by the health department is not in the public interest. Legislation governing "care" homes commonly exempts those that are publicly operated. This practice is unsound. The facts do not generally support the implied assumption that public facilities do not need supervision because they are already making an effective and necessary contribution to the total medical care program of the community.

Boarding homes for older persons and homes caring for less than three sick or infirm persons seldom have to meet the requirements of such legislation. Such exclusions from licensure increase the number of illegally operating nursing homes. This observation is true for Nassau County, New York, where the ordinance does not cover (specifically) boarding homes for older persons. There, unless the evidence is that three or more sick or infirm persons are given care for a consideration in a private home, the ordinance does not apply. Medical health officers face practical difficulties in determining whether or not older persons in such homes are infirm. Since

such individuals seldom have pre-admission and periodic medical examinations, the health official can form an opinion only on the basis of what is obvious on inspection. These limitations decrease the likelihood of successful prosecution of those whom the licensing agency charges with violation of the nursing home article of the public health ordinance. In Nassau County today, the number (not the capacity) of known so-called "boarding" homes for older persons and homes offering care to less than three patients exceeds that of licensed nursing homes. There, health officials frequently find that the "boarding" home is, in fact, an unlicensed, second-rate nursing home. Amendment of the Nassau County Public Health Ordinance in accordance with these principles is likely in the near future.

The discussion which follows shows the practical application of these principles of licensure. A person files an application for a license to operate a "care" home. The health department determines both the adaptability of the physical plant to such use and the fitness of the applicant to operate such a facility. After completing an investigation, the health department either denies the application, or issues a "care" home license for a probationary period if, from the evidence at hand, it appears highly probable that both the plant and the operator can, within a year, meet or exceed the minimum standards either of a supervised boarding home for older persons or of a licensed nursing home. A statement accompanies this license. This tells the operator exactly what he must do in accordance with a time schedule, if he is to qualify for a license to operate (1) a supervised boarding home for older persons, or (2) a licensed nursing home. If, at any time during the probationary period, the operator fails to meet the conditions of the license to operate a "care" home, the department gives notice and later revokes that license, and, if necessary, files an information. During the probationary period, the department gives a great deal of educational assistance to the operator. If prior to or at the end of that period, the facility meets the minimum standards either of a supervised boarding home for older persons or of a licensed nursing home, the department issues a license accordingly.

Some things have been done in Nassau County that seem to warrant application elsewhere.

Through conferences with zoning, building, and fire officials, the county department of health has been able to secure a statement of minimum requirements for fire and building safety which every local inspector will enforce. As a result, the department has been able to give written notice to all nursing home operators a full year in advance of the effective date of any new requirements of fire and building authorities.

"Team" inspection has replaced those made independently by fire, building, health and welfare officials in order to impress sufficiently both officials and operators with the fact that these homes are medical care facilities. Inspection by a "team" is also advantageous because all persons responsible in any way for licensure have an opportunity to see the home under the same conditions and all recommendations can be agreed upon and summarized at the time of the inspection.

The purpose of supervision is to improve the quantity and quality of the total services rendered to the consumer. Much of the present-day emphasis in supervision is on safety from fire, sanitation of the environment, and adequate provision for the basic needs for creature comfort. All of them deserve attention. However, the important thing to remember is that the consumer, in such a facility, pays for and is entitled to receive quality attendant and nursing care under medical supervision. Consequently, un-

less supervision is concerned with the quality of medical, preventive, and health services, these facilities will not make an effective and necessary contribution to the total medical care program of a community. If the development of a "what is the use" attitude on the part of many older persons in these homes is to be prevented, supervision must be extended to include provision for a full social life according to the individual's physical and mental strength and capacity. Efforts to "add life to years, not merely years to life" have been amply rewarded according to Wagner [6] and Gorrie.[7]

The application of this philosophy of supervision requires that all the habits and thoughts of many people regarding "between the hospital and home facilities" be changed. Education is, therefore, a fundamental part of supervision. Medical practitioners, operators, and staffs of nursing homes and related facilities, members of the inspectional force responsible for supervision, appropriating and other officials, and the consumer public—all must be moved to assume their respective and collective responsibilities for supervision. The fact that a purposeful and well directed educational approach results in sustained improvements in services and in their extension has been amply demonstrated in connection with many other areas of medical-social service. Education is fundamental to integration of services and to the economic use of facilities.

Administrative problems encountered in connection with the regulation and supervision of nursing homes have resulted from (1) the number of governmental officials involved in licensure; (2) the habits of thought and action of public officials, some of whom are not directly concerned with licensure; (3) the language of the regulation, which frequently makes possible more than one interpretation of its intent; (4) the inability of operators to secure adequate and qualified personnel, especially nurses, and needed materials for structural improvement; (5) the acute shortage of beds in general hospitals and allied medical facilities; (6) the number of older persons suffering from mental changes of non-committable character; (7) the fact that the present provisions of the federal Social Security Act preclude payment of benefits to individuals in public institutions as a reimbursable item and, conversely, that in this state, care in a private nursing home is a reimbursable, medical item.

Administration has been made more effective through other uses of education. An institute on nutrition was offered to nursing home operators. Attendance was excellent. Public health nurses and medical personnel on the staff of the department periodically review medical and other records which are required of nursing home operators.

A consultative and advisory service has been initiated by the department. Such services are available to existing operators, to those who plan to open nursing homes, to public officials, and to the general public. One of the practical values of such services to prospective operators is protection against rental or purchase of a building which either is not zoned properly or cannot be economically converted for use as a nursing home. Those operators who plan to remodel or to extend their facilities are assisted with the practical planning for such changes.

Frequently information is made available to members of the medical profession and the general public regarding availability of beds in nursing homes. This information service has also been utilized by those in governmental agencies, notably welfare officials.

The Nassau County Department of Health requires the reporting of all accidents which happen in nursing homes, irrespective of evident injury therefrom. The department then investigates the

conditions under which these accidents occurred. Such vital data are generally not available in "Accident Facts." They are obviously a necessary basis for the formulation of a program for prevention of accidents in such medical care facilities.

During 1945 the Nassau County Department of Health, public welfare and fire prevention agencies, jointly considered existing nursing home facilities in relation to need, and filed recommendations with the Office of the County Executive. One of the recommendations was that consideration be given (1) to the full utilization of existing community resources, including public facilities, for the care of the sick, infirm, and handicapped older persons; (2) to the development and maintenance of additional public facilities, for example, a county nursing home; and (3) to the admission of paying patrons to such public institutions. County Executive, J. Russel Sprague, has recently announced that Meadowbrook, a county operated general hospital will be enlarged from 250 to 600 beds, and that the plans for expansion of that facility include a 150 bed chronic disease unit. Primarily because the state law does not now permit the state to reimburse local governments for their expenditures for the care of recipients of public assistance in tax supported institutions, no county nursing home or other medical domiciliary care facility is eventuating. This suggests the need for amending the New York State law, so as to encourage communities to provide adequate medical care facilities.

The simultaneous solution of the complex of interrelated problems under the head of "chronic illness," necessarily requires a coöperative program of the people in their own communities.

Since welfare workers have significantly contributed to a changing social order with its aging population; they cannot escape the responsibility for the medical-social problems that have resulted.

Area Supervisors of the State Department of Social Welfare have many opportunities to improve the lot of older persons—wherever they may live. The preventive approach offers the greatest hope of defeating chronic illness. Yet, today, only 12 of the 57 varieties of counties in upstate New York have a full-time department of health and thus provide their citizenry with the community health protection services which develop under such leadership.

Rusk [8] has stated that rehabilitation to the point of self-care, and even to full or limited employment, is possible for many of the chronically ill who have been hospitalized (or given custodial care elsewhere) over long periods.

The New York State Legislative Committee on Problems of the Aged stresses employment as a form of therapy and full utilization of older workers as an essential means of maintaining the present standards of living in this nation.

Social welfare and health workers generally need to review critically their administrative practices in the light of the extent and special character of the needs of older persons.

Improvement and extension of nursing home and related medical care facilities are urgent needs in a nation-wide, integrated approach to the medical-social problems of all older persons.

Licensure of all private and publicly operated "between the hospital and home facilities" by the State Department of Health is administratively practicable and desirable.

Education should keynote the administration of a licensure law. Supervision should be inclusive and cover medical, preventive, health, and social services.

Corrective legislation is indicated. Care in a public medical facility should be a reimbursable item of expense to local governments.

Care in a public institution should be available to all who need it. Payment for such services should be required according to ability to pay. Both privately and publicly operated medical care facilities should provide quality services geared to the needs of older persons.

Evidence is increasing that the public will soon insist that a nursing home be a safe, sanitary, private or public medical care facility, operating under health department licensure and having medical services affiliated with the staff of a secondary hospital center; that the personnel of a nursing home be prepared by training and experience to render, under medical supervision, preventive, medical, health, and social services based on the total needs of sick, infirm, or handicapped persons, not requiring hospitalization; and that the patient in such homes be provided the maximum opportunity for rehabilitation, and, whenever possible, resumption of a happy, economically useful life in his own home.

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What Does Public Health Nursing Cost*

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THERE is a familiar quotation to the effect that public health can be purchased. Research and experience have demonstrated how to achieve a high level of health if a communtiy is willing to spend the necessary money. Tax-conscious citizens want to know "How much does it cost?"

We have been hearing today how to increase the expertness of the public health nurse. If a community is to have expert public health nursing service, and if on-the-job training programs are to be maintained, there must be funds to finance such services and programs. The budget-minded administrator has to think in terms of dollars and cents.

This need to think in terms of cost was felt by visiting nurse associations more than twenty years ago when they entered into contracts with large insurance companies to furnish home nursing service on a fee basis. At that time, the National Organization for Public Health Nursing met an urgent need by developing a standard method for computing the cost of a home nursing visit. This method has been in widespread practice ever since and, as a result, perhaps more than any other branch of the great health and welfare enterprise in this country, visiting nurse associations have been accurately informed concerning the cost of at least one of the services they render.

Official public health nursing agencies have not had the same interest in the cost of a home nursing visit. Since their budgets come largely from tax funds, their concern with respect to cost is likely to center around a service program such as maternity for which funds may be available from state or federal appropriations.

Two years ago, the N.O.P.H.N. undertook to develop a new method for computing costs in public health nursing which would adequately meet current needs, particularly those of the official agencies. Two gifts made the initiation of such a project possible. The U. S. Public Health Service loaned Margaret Arnstein to serve as director of the study for one year and the Metropolitan Life Insurance Company contributed $10,000. Subsequently, additional funds were obtained from the Public Health Service through its division of Research Grants and Fellowships, and other individuals and firms have been generous with time and service.

Miss Arnstein and cost accountants from the Trundle Engineering Company, skilled in analyzing and solving cost problems for all types of business and industrial firms, began by visiting four sample agencies to explore the types of cost problems which might be encountered in public health nursing—a city health department, a county health de-

* Presented before the Public Health Nursing Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

partment, a visiting nurse association, and an organization combining the functions of an official and a voluntary agency. Together, they devised a single method of cost accounting which could be used in all the situations they had observed. In the past year, this method has been tested in nine agencies of varying size with different types of administration. It has undergone certain modifications, and a manual of instructions outlining the method has been written, revised, rewritten, and rearranged, as actual experimentation suggested improvement.

The manual is not yet in its final version but the committee guiding the project is ready to recommend the method, convinced that it is the soundest and best procedure for public health nursing at the present time.

We understand that there is no one right method of cost accounting; but the advantages of a single standard method for public health nursing agencies are obvious if there is to be any comparison of results or if the resulting costs are to be used as a basis for negotiating contracts with a common consumer, such as the large insurance companies have been in the past and as state and federal agencies may become in the future.

We understand too that the nursing division is only a part of a health department, but public health nurses have never been averse to pioneering. Perhaps, if a satisfactory method for computing costs in the nursing division is available, health officers may become so enthusiastic about the possibilities and results that they will see the advantages of extending such a study to cover all divisions in the health department. One such health officer is a member of the working committee guiding the study.

One of the virtues of the recommended procedure is its versatility and flexibility. Whereas agency A wants to know the total cost of its maternity program in order to apply for funds which may be available through state or federal appropriations, agency B is experimenting with different kinds of field experience for students and wishes to know the relative cost of each, while agency C, which combines the functions of a health department and a visiting nurse service, wants to determine how much of its budget should rightly come from tax funds and how much from the community chest. All three can apply the proposed method of cost accounting to obtain the information they seek. It can be used to compute the cost of a service program such as maternity or tuberculosis, the cost of a unit of service such as a clinic session or a home visit, or the cost of a unit of time such as an hour of school nursing or a student day.

The first step is to analyze the reasons for wanting cost information and to list the "cost centers" which will be needed to give the desired results. Cost center is the term used for any program, service, or activity for which costs are to be computed. In setting up cost centers, all of the functions of the agency should be recognized so that one service will not unwittingly be charged with costs that belong to another. Cost centers may be subdivided into as many categories as the agency desires, but it will be necessary to decide at the beginning of a fiscal year what subdivisions are needed in order to plan for a statistical count of service in the same breakdown. For example, if an agency wishes to develop separate costs for different types of visits, it must keep a record of the number of visits of each type made during the year.

Once the cost centers are determined, the problem becomes one of allocating the various expenses incurred during the year. Different kinds of expenses are allocating in different ways. There are (1) the salary cost of actual nursing service rendered, (2) the cost of super-

vising service performed by staff nurses, (3) transportation cost which includes the cost of operating cars owned by the agency, depreciation on these cars, money paid to nurses for the use of their cars, and carfare, (4) direct cost, items of expense peculiar to a single cost center which are kept separate on the agency's books, and (5) overhead expense which includes the cost of administration, clerical service, rent, office expenses, nursing supplies, insurance and all other expenses not already listed.

Direct costs are allocated immediately to the appropriate cost centers. Transportation costs are allocated according to the number of trips incurred in each cost center. All other expenses are allocated according to the number of trips incurred in each cost center. All other expenses are allocated on a time basis according to the number of hours spent in each cost center during the year. Sample time studies are made to determine the length of time required per unit in each cost center, e.g., the time per clinic session, the time per visit, the time per student day, etc. Then using the total number of units recorded during the year and the standard time for each unit, the total annual hours required during the year and the standard time for each unit, the total annual hours required for each cost center are computed.

Time studies need be made only for sample periods long enough and frequent enough to produce representative averages. In most agencies, it is suggested that two studies lasting two weeks each will be adequate. Once the standard time units have been calculated, annual cost studies may be made for the next two or three years without repeating the time study unless there is good reason to believe that the average time per unit has changed. Since the time study is the very heart of the cost procedure, considerable effort is justified to enlist the interest and coöperation of those who participate. It is strongly recommended that the time study used for cost accounting purposes never be used as a supervisory tool. The time records must reflect what actually happens, not what the staff nurse thinks the supervisor would like to see.

Now that the method has been standardized to the committee's satisfaction, the project has entered into a second phase. Elizabeth Stobo, who succeeded Miss Arnstein as nurse director of the study, is conducting a series of three day institutes throughout the country for the purpose of teaching the method to agencies and encouraging them to use it to compute their own costs. She is meeting an enthusiastic response everywhere. State directors of nursing are coöperating with her in selecting suitable locations for the institutes and in suggesting agencies and persons to whom invitations should be extended. In addition to nurse directors, chief clerks, and statisticians who have accepted the invitations, at least one health officer has asked to attend with a view to applying the method to other divisions in the department for which he is responsible.

It is understood that acceptance of an invitation to attend an institute carries with it an obligation to try out the procedure and submit the resulting cost data to the N.O.P.H.N. study committee. A copy of the manual of instructions in its present form and an adequate supply of time study forms and posting sheets are provided for each agency to undertake its own cost analysis.

Although the method is not difficult to understand in theory, the committee is aware that the task of tabulating time study data and of completing the necessary computations involved in allocating expense data to the different cost centers presents practical difficulties not to be minimized in the average agency

without personnel trained for such work.

In the tests which have been made of the method during the past year, it has been demonstrated that mechanical tabulation is preferable to hand posting for summarizing the time study data. In a large agency, where the volume of data is great, it is difficult to maintain accuracy when tabulating by hand. In a small agency, there is often no one to do the job. While posting sheets have been designed in considerable detail for organizations which wish to handle this part of the work themselves, plans are being worked out with International Business Machines so that agencies may send their time study worksheets to a central tabulating bureau to be punched on cards and summarized mechanically. Eventually, such facilities may be available through local and regional I.B.M. offices but, while the study is still in progress, it will be handled by the New York office through the N.O.P.H.N. so that the study staff can keep in close touch with the types of problems which will arise and see that they are handled consistently.

So much for the tabulation of time study data. As for the computations involved in the allocation of expense data to the various cost centers, it is expected that, while the study is in progress, members of the staff under Miss Stobo's direction will be able to take over this part of the work at a price which will be attractive to individual agencies.

Thus relieved of laborious, time-consuming computations, each agency may concentrate on a thoughtful plan for cost centers to meet its specific needs and a painstaking and accurate record of how individuals spend their time during a brief sample period.

Early in 1949 a statistician will be added to the study staff as the project enters a third and final stage. Material submitted by agencies which have attended the institutes and studied their own costs will be analyzed with two objectives in mind: (1) to see whether the proposed method is as practical and as valid as the committee believes it to be, and (2) to determine what public health nursing service under different types of administration in different parts of the country does cost. This final phase of the project is expected to be completed by the end of the year 1949.

If you are a public health nursing administrator faced with the task of preparing a budget and securing funds to carry out the kind of program you know is desirable, here is a tool you have been seeking. You can answer that question of tax-conscious citizens, "How much does public health nursing cost?"

Comparative Analysis of the Standard Methods Methylene Blue Stain and Advantages of the Polychrome and Acid-and-Water-Free Stains in the Direct Microscopic Examination of Milk

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IN this report a critical analysis of the Standard Methods' recommendations for staining milk films and the results of a comparative study of direct microscopic counts made on 75 milk specimens is presented. These specimens were collected during the week of March 9–14, 1948, from a Northern Illinois milk shed. The health department of the city receiving this supply of milk exercises strict laboratory control. For purposes of identification and differentiation in this and other reports, we refer to such a milk supply as a "graded" supply, and to others less strictly controlled, as "inspected" supplies.

PROCEDURE

Milk samples were collected early in the morning at the milk plants from cans, as they were delivered to the plants by the individual producers. No duplicate collections were made. The requirements in the Eighth and Ninth Editions of *Standard Methods for the Examination of Dairy Products* for the collection and delivery to the laboratory of milk samples,[1] were strictly followed. Four sets of 1 cm. sq. films were prepared as described in a previous paper.[2] Most of the staining procedures commonly used in the direct microscopic technic for determining the bacterial counts of milk were previously studied by us and a report of the results has been presented in another paper.[3] One set was stained by the carbolated methylene blue procedure, another set by the polychrome stain, and the remaining two sets by the acid-and-water-free stain, as described later in this report. This study was therefore limited, first, to an analysis of the stipulations set forth in the Eighth and Ninth Editions of Standard Methods for staining milk films, and second, to a comparison of the results obtained by two newly proposed staining procedures, with the results of the standard carbolated methylene blue slides which were, as recommended in Standard Methods, partially destained in alcohol prior to counting. One of the new stains developed in our laboratory and described in a previous paper[2] was designated by us as the acid-and-water-free stain, because it is free from *added* acid or water. The

other stain, a variety of the polychrome methylene blue, was described in a mimeographed sheet of instructions issued by the Rockford (Illinois) Health Department Laboratory, March 11, 1948.[4] The defatting agent and the polychrome dye solution used in this study were supplied to us by the authors of that staining procedure.

The process of staining was carried out in each instance as prescribed by Standard Methods or by the authors of the new procedure. The microscope was standardized to a factor of 300,000. The number of fields counted was never less than that required in Standard Methods and in many instances exceeded it.

STAINING SOLUTIONS AND PROCEDURES RECOMMENDED

In the Ninth Edition of Standard Methods under the item "Preparing Stains," the following is recommended: "To maintain sterile staining solutions, use carbolated methylene blue, prepared by adding 10 ml. of a saturated aqueous methylene blue solution to 90 ml. of a 2.5 per cent phenol solution. When assured of freedom from objectionable contaminants, optionally use a stain prepared by dissolving 0.3 gm. of certified methylene blue powder in 30 ml. of 95 per cent ethyl alcohol or suitable denatured alcohol, and then add to the alcoholic solution 100 ml. of distilled water." Since the use of the above described stains is optional, it is conceivable that where a batch of milk films may be divided between two workers, one may use the stain prepared by adding the 10 ml. of saturated aqueous to 90 ml. of carbolated water, while the other, due to personal preference, may use the optional staining solution. The films would then be counted and the results regarded as if obtained by one and the same standard procedure.

An analysis of the two staining solutions shows that such a technical procedure may not produce standard results. In the first place, since 10 ml. of an aqueous saturated solution of the dye contains 0.355 gm. of the dye,[5] and the solution is made up to 100 ml., the percentage of the dye content in this solution will be 0.355. In the second solution, where 0.3 gm. of the dye in 30 ml. of alcohol are added to 100 ml. of distilled water, thus making a final volume of 130 ml., the percentage of the dye will be only 0.23 per cent, or 36 per cent less than the dye concentration in the first staining solution.

In the first staining solution water alone is used as the solvent of the dye. Water has a surface tension of 72.23 dynes per sq. cm. under standard conditions of testing. In our experiments the addition of 2.5 per cent of phenol lowers this tension to 46.0 dynes per sq. cm.* In the second staining solution the solvent of the dye consists of 100 ml. of distilled water and 30 ml. of alcohol. Its surface tension was found to be 41.0 dynes per sq. cm. The pH of the solvent of the first staining solution was 5.4 and that of the second 4.4. The errors introduced into the pH values by the addition of alcohol, when plotted, follow a type of hyperbolic curve, and between the concentrations of 95 per cent and 25 per cent of alcohol have the limiting values of 0.025 and 0.001. We believe, therefore, that in determining the pH of the solvent which contains alcohol, we can use the readings without making any corrections. After the dye is added, the pH values of the two staining solutions under discussion become practically identical, as is shown in Table 1.

Table 1 shows that the two factors having the greater differences in values are the dye concentration, which, in the alcohol-containing solutions is 36 per cent less than in the carbolated staining solution, and the surface tension, which is 11 per cent higher in the carbolated

* Acknowledgment is made to Sanitarian (R) Francis I. Norris for surface tension measurements.

TABLE 1

Surface Tension, pH and Dye Content of the Two Standard Methylene Blue Staining Solutions

	Solvent Alone		*Final Staining Solution*		
	Surface Tension *	*pH*	*Surface Tension* *	*pH*	*Dye Concentration*
Carbolated Solution	46.0	5.4	46 0	3.8	0.355%
Alcohol Containing	41 0	4.4	41.0	3.7	0.230%

* In dynes per sq. cm.

solution than in the alcohol-containing solution. Our concept of the process of staining milk films with methylene blue hydrochloride is basically that of adsorption. This was discussed by us in another paper.[2] The final values in isothermic equations which express the equilibrium attained by any system of adsorption are largely controlled by the concentration of the solute, or the adsorbent, and by the surface tension of the solvent.[7, 8] There are, of course, other factors of influence, but for purposes of our present study only the two mentioned factors are considered. Adsorption is a very sensitive reaction and is highly responsive to changes in the magnitude of the major factors which influence it. This is especially true of the two factors mentioned which show considerable difference in Table 1. It would seem, therefore, that, unless a comparative study justifies the retention of the two staining solutions as equally standard, only one should be designated as such. On the basis of theoretical considerations, and some of our preliminary results, the alcohol-containing formula should perhaps be given preference.

EFFECT OF DECOLORIZING MILK FILMS STAINED BY THE CARBOLATED METHYLENE BLUE PROCEDURE

The recommendations for the actual staining of milk films are specified in the Ninth Edition of the Standard Methods, as follows: "Dip slides in staining solution *just long enough* (usually 10–15 sec.) to provide a contrasting background for the more deeply stained bacteria, but avoid overstaining. Rinse slides carefully in water and, if overstained, partially decolorize in alcohol." Such a specification can hardly be fitted into the concept of one supposed to be standard.

In the first place, the expression "*just* long enough" and "usually 10–15 sec." are worded in such nonspecific terms as to mean anything from 5 seconds to 30 seconds to different workers, since it is not readily feasible to determine whether or not a proper contrast has been attained before the slides have been examined under the microscope. In the second place, the expression "to provide a contrasting background for the more deeply stained bacteria" seems to presuppose that all bacteria found in all milks stain more deeply than the proteins of the milk. This, as we know now, is an erroneous supposition. Many bacteria stain to barely the same intensity with the background. They can be discerned and counted only by experienced workers, by recognizing their peripheral outlines. If the staining process is so carried out as to attain strong contrasts, such lightly staining bacteria will be completely lost from view. This is what was meant by the statement in one of our previous reports that "strong contrasts are attained at the expense of delicacy in color shades, which in turn results in the loss of visibility of numerous bacteria whose affinity for the dye is only slightly greater than that of the milk proteins forming the background of the smear."[3] And finally, since the in-

TABLE 2

Comparison of Microscopic Clump Counts of 75 Raw Milks Stained by Carbolated Methylene Blue

	Total Group Count	*Average Count*	*Highest Count*	*Lowest Count*
Before destaining	9,362,000	125,000	2,700,000	6,000
After destaining	11,750,000	157,000	2,400,000	30,000

tensity with which the contrasting background may be stained will vary with the preference of different workers, the number of bacteria missed in counting films made of the same milks may vary widely. Concomitant with this, the recommendation that overstained slides be partially decolorized in alcohol, will lead to additional wide variations in counts, since different workers, as well as the same workers at different times, may regard seemingly satisfactorily stained slides as overstained, and vice versa.

To determine the effect of partial decolorization in alcohol of milk films stained by the carbolated methylene blue procedure, the following experimental test series was carried out. A set of 75 milk films of the specimens collected were stained by the aqueous carbolated stain for as nearly 15 seconds as laboratory procedures of this kind permit. The films were counted and the results recorded. The stained slides were then decolorized by immersing them in 95 per cent ethanol for 15 to 20 seconds, and again counted. Comparison of results on a basis convenient for tabulation is presented in the next 4 tables.

If the effect of destaining on the bacterial counts of the groups of the 75 milk specimens is expressed in general terms of highest, lowest, and mean averages, it leaves the impression that the difference is very slight, as can be seen from Table 2.

However, when the data are analyzed in greater detail, as is done in Tables 3,

TABLE 3

Increase in Clump Counts of 32 Raw Milks Stained by Carbolated Methylene Blue

Specimen Number	*Count before Destaining*	*Counts after Destaining*	*Absolute Increase*	*Per cent Increase*
1	6,000	60,000	54,000	900
2	72,000	170,000	98,000	120
3	60,000	150,000	90,000	150
9	30,000	80,000	50,000	160
10	24,000	170,000	146,000	600
11	36,000	160,000	124,000	340
12	78,000	110,000	32,000	40
13	78,000	110,000	32,000	40
14	60,000	200,000	140,000	230
16	100,000	460,000	360,000	360
17	66,000	130,000	64,000	97
19	440,000	1,100,000	660,000	150
20	66,000	320,000	254,000	400
21	260,000	350,000	90,000	37
22	180,000	260,000	80,000	44
27	66,000	110,000	44,000	67
30	96,000	130,000	34,000	35
31	60,000	110,000	50,000	80
32	110,000	270,000	160,000	150
37	54,000	80,000	26,000	50
38	72,000	140,000	68,000	94
40	66,000	90,000	24,000	36
42	48,000	100,000	52,000	110
54	160,000	220,000	60,000	37
55	24,000	70,000	46,000	190
57	36,000	50,000	14,000	39
58	36,000	60,000	24,000	67
61	36,000	50,000	14,000	39
64	36,000	50,000	14,000	39
65	24,000	40,000	16,000	67
71	78,000	110,000	32,000	40
74	36,000	50,000	14,000	39

4, and 5, the difference in the counts obtained from the original and destained milk film appears to be of significance. Not only does the difference appear to be of importance from the viewpoint of general statistics, but it affects the number of milk specimens which might fall into Grade A.

In preparing Table 3, only those milk specimens in which the actual increase in bacterial counts, after partial destaining, was over 35 per cent of the original, were included. Even then, as may be seen from the table, in 32 specimens out of 75, or 43 per cent, the counts increased variably from 39 per cent to 900 per cent over the counts made prior to destaining. In 18 instances the counts after destaining were lower than the originals. In 9 of these, or 12 per cent (not tabulated), the actual decrease in counts was 10,000 or less. Such a differance was regarded by us as well within the experimental error. The remaining 9 counts, or 12 per cent, are listed in Table 4.

greater part of the bacteria will yield the adsorbed dye to the alcohol to a degree exceeding that of the milk proteins (and we know from experimental evidence that this oftentimes occurs), the number of bacteria visible under the microscope will become reduced after destaining. However, the frequency with which destaining of carbolated methylene blue stained milk films effects an increase in the bacterial counts, exceeds by far the frequency with which it effects a decrease in the counts. This is clearly shown by comparing the data presented in Tables 2 and 3. In Table 2, 32 specimens are listed, or 43 per cent of the entire set studied; the per cent of count increase varied from 35 as the lowest to 900 as the highest, with an average of 155 per cent. In Table 3, 9 specimens are listed, or 12 per cent of the entire group; the per cent of count decrease varied from 17 as the lowest to 46 as the highest, with an average of 34 per cent.

The effect which partial destaining of

TABLE 4

Decrease in Clump Counts of 9 Milks Stained by Carbolated Methylene Blue

Specimen Number	*Counts before Destaining*	*Counts after Destaining*	*Absolute Decrease*	*Per cent Decrease*
4	78,000	50,000	28,000	36
8	120,000	70,000	50,000	40
23	190,000	130,000	60,000	33
45	230,000	100,000	130,000	46
52	84,000	50,000	34,000	40
56	120,000	100,000	20,000	17
63	140,000	100,000	40,000	38
69	72,000	60,000	12,000	17
70	144,000	90,000	54,000	37

It is believed that the increase and decrease in bacterial counts, after milk films stained with carbolated methylene blue are partially destained in alcohol, are due to related factors. In instances where the milk proteins give up the excess dye to the alcohol to a degree greater than the larger part of the bacteria, the background will be lightened and more bacteria will become visible under the microscope. On the other hand, in those milk films where the

carbolated methylene blue stained milk films may have upon grade placement of the milks tested is brought out in Table 5. In this table are listed milk specimens the bacterial counts of which exceeded 200,000 in either the "undestained" or the destained, or in both types of milk films.

The data presented in Table 5 show that according to the "undestained" counts only 6 of the milks had counts exceeding 200,000, whereas by the

TABLE 5

Analysis of Counts Exceeding 200,000 by Carbolated Methylene Blue

Specimen Number	*Counts Before Destaining*	*Counts After Destaining*
16	100,000	460,000 *
18	250,000 *	290,000 *
19	440,000 *	1,100,000 *
20	66,000	320,000 *
21	260,000 *	350,000 *
22	180,000	260,000 *
24	250,000 *	270,000 *
32	110,000	270,000 *
45	230,000 *	100,000
54	160,000	220,000 *
62	2,700,000 *	2,400,000 *

* Counts exceeding 200,000 are followed by asterisks.

counts of the destained slides 10 specimens had such counts. This represents an increase of 67 per cent. The reverse situation occurred in only one specimen, No. 45. If a similar comparison is made on the basis of the 400,000 count limit suggested[9] for milks held over before pasteurization, only 2 milk samples by the "undestained" (Nos. 19 and 62) and 3 samples by the destained procedures (Nos. 16, 19, and 62) would fall below grade A. While such numbers are inadequate for percentage interpretation, here also the destained procedure screened out a greater number of milks than did the "undestained" procedure.

In appraising the significance of the data just discussed, it must be emphasized that the counts were made on milks obtained from a "graded" supply, where generally the bacterial counts tend to stay considerably below the border lines. It is reasonable to suppose that if a similar survey were made in a milk shed constituting an "inspected" supply, where the sanitary control is not so strict, instances in which counts by the undestained procedure come close to the border line of 200,000 might be more numerous.

We have previously shown that the differences in the surface tension, the pH, and the dye concentration of the two staining solutions recommended as optional in the Ninth Edition of the Standard Methods are considerable. In the immediately preceding paragraphs we have shown that the differences in bacterial counts and their effect upon the grade placement of the milks in "undestained" and destained milk films are also of a significant magnitude. Therefore, the question arises whether the options permitted by Standard Methods are in accord with the concept and purpose of standard procedures. In our opinion, the concept and purpose of standard procedures precludes any alternatives or options, unless it can be proved to the satisfaction of those most concerned that the differences between the results secured by the alternative or optional procedures and those of the basic standard procedure, lie within the limits of experimental error.

COMPARISON OF BACTERIAL COUNTS OF MILKS STAINED BY THE CARBOLATED, THE POLYCHROME AND THE ACID-AND-WATER-FREE METHYLENE BLUE STAINS

An analysis of the data presented in the preceding section of this report appears to indicate that proper decolorization of a series of milk films stained by the carbolated methylene blue procedure results in a greater number of maximal counts, and concordantly in a greater number of counts which exceed the 200,000 limit of grade A milk. For this reason we have used counts obtained on the set of decolorized slides as our basis for comparison in the following study. As stated previously, these slides were prepared and stained on the days the milk samples had been brought into the laboratory. The staining with the poly-

TABLE 6

Comparison of Microscopic Clump Counts of 75 Raw Milks Stained with Methylene Blue

	Total Group Count	*Average Count*	*Highest Count*	*Lowest Count*
Carbolated Destained	11,750,000	160,000	2,400,000	30,000
Polychrome	9,000,000	120,000	1,800,000	6,000
Acid-and-Water-Free	15,900,000	210,000	3,600,000	50,000

chrome methylene blue was carried out following the instructions of Anderson, Moehring, and Gunderson,[10] using the defatting-fixing agent and the polychrome stain supplied by them. The staining of these slides was accomplished seven days after the milk films had been prepared and kept in dry condition. The acid-and-water-free stain was applied by us as outlined in a previous paper [2] using the two-dip procedure. This set of dried milk films were 14 days old when they were thus stained.

As shown in Table 6, the overall survey indicates that the highest counts were obtained from the milk films stained by the Acid-and-Water-Free procedure. This was followed by the Carbolated Methylene Blue, destained. The counts obtained by the polychrome methylene blue staining procedure appear to be the lowest. Comparing the data obtained for this polychrome stain with corresponding data for the carbolated methylene blue not destained, as shown in Table 1, it appears that the results of these two stains were similar. In a previous study,[2] where a different batch of the polychrome stain, also supplied by the originators was used, we reported considerably higher results for the polychrome stain. This might indicate that different batches of this stain may not be uniform and thus tend to yield varying results.

In Table 7 are presented results of bacterial counts which exceeded 200,000 by one or any combination of the staining procedures compared.

An analysis of Table 7 shows that of the 75 milk specimens studied, 10 specimens, or 13 per cent, gave bacterial counts exceeding 200,000 by the partially destained carbolated methylene blue stain; 9, or 12 per cent, by the polychrome stain; and 17, or 22 per cent, by the acid-and-water-free stain. In only two specimens (Nos. 16 and 20)

TABLE 7

Analysis of Counts Exceeding 200,000 by Methylene Blue Stains

Spec No	*Carbolated Decolorized*	*Polychrome*	*Acid-and-Water-Free*
8	70,000	60,000	230,000 *
16	460,000 *	60,000	72,000
18	290,000 *	250,000 *	360,000 *
19	1,100,000 *	480,000 *	800,000 *
20	320,000 *	66,000	110,000
21	350,000 *	260,000 *	560,000 *
22	260,000 *	180,000	220,000 *
23	130,000	60,000	220,000 *
24	270,000 *	170,000	300,000 *
26	130,000	66,000	290,000 *
27	110,000	54,000	250,000 *
28	120,000	90,000	210,000 *
29	110,000	48,000	210,000 *
32	270,000 *	400,000 *	710,000 *
38	140,000	280,000 *	380,000 *
39	110,000	300,000 *	290,000 *
41	100,000	140,000	220,000 *
54	220,000 *	270,000 *	490,000 *
60	60,000	80,000	230,000 *
62	2,400,000 *	1,800,000 *	3,600,000 *

* Counts exceeding 200,000 are marked with asterisks.

did the carbolated methylene blue yield counts over 200,000, and the other two stains produce counts below that number. The acid-and-water-free stain yielded 7 such cases, while in the films stained by the polychrome methylene blue, there were none. This analysis verifies the impression gained from a study of Table 6, namely, that the polychrome staining solutions used produced counts not exceeding those obtained from counting "undestained" carbolated methylene blue films. The fact remains, however, that with another batch of this type of stain we were able to obtain counts considerably higher than with the destained carbolated methylene blue.[2] With either of the batches used no overstaining has occurred and the slides could be read with much greater ease than those stained with carbolated methylene blue. From this it appears that the polychrome stain has favorable possibilities, which improvement in the process of its preparation may bring out.

FOURTEEN AND NINETY DAY OLD FILMS STAINED BY THE ACID-AND-WATER-FREE PROCEDURE

There are reasons for which even a most carefully planned study cannot always be carried out as originally designed. Thus, as previously stated, only the carbolated methylene blue stain was applied to the milk films of the series here reported on the days the milk specimens were brought into the laboratory. The polychrome stain was applied 7 days, and the acid-and-water-free stain 14 days later. The sets of dried milk films held over were kept in slide boxes and in a dry atmosphere. It was assumed that in such a state the original staining properties of the slides would remain unaffected. However, in order to ascertain the correctness of our assumption, the first 50 slides of the remaining unstained set of the series of milks here studied were stained by the acid-and-water-free procedure 90 days after the last collection day. They are compared with the 14 day old slides in Table 8.

Even a cursory glance over the data presented in Table 8 indicates that their values are practically similar and that any difference between them lies well within the range of experimental error. An analysis of the data verifies this. Thus, the total of the counts made on the 14 day old films is 9,300,000, the average of the counts is 190,000, the highest 710,000 and the lowest 42,000. The total of the counts made on the 90 day old films was 10,400,000, the average 200,000, the highest 1,100,000 and the lowest 50,000. The number of milk specimens which exceeded the 200,000 count was 15 in the 14 day old set and 16 in the 90 day old set. It was noted, however, that specimen 29 gave a count of 210,000 on the 14 day old film and only 160,000 on the 90 day old film. Conversely, specimen 43 gave a count of 220,000 on the 90 day old film and only 200,000 on the 14 day old film. These differences lie within the range of experimental error. Similar comparative observations were made by us on limited sets of milk slides varying in age from 2 to 14 days, stained by the polychrome and acid-and-water-free stains.

It would seem from the study of Table 8 that from the viewpoint of individual counts, and consequently from the viewpoint of effect upon grade placement, dried milk films stored under satisfactory conditions may be stained and examined as long as 90 days after preparation, and possibly longer, and still yield reliable results. This is of importance when a survey of milk film counts by the same or different stains in a selected number of widely distributed milk laboratories is considered. In the light of these results, it would appear both practical and safe to have a number of sets of milk films prepared in a designated laboratory for distribution for survey purposes, by following a procedure similar to the one adopted

TABLE 8

Comparison of Clump Counts of Milk Films 14 and 90 Days Old, Using the Acid-and-Water-Free Stain

Spec. No.	Milk Films 14 Days Old	Milk Films 90 Days Old	Spec. No.	Milk Films 14 Days Old	Milk Films 90 Days Old
1	54,000	84,000	26	290,000 *	220,000 *
2	110,000	120,000	27	250,000 *	330,000 *
3	100,000	96,000	28	210,000 *	220,000 *
4	50,000	60,000	29	210,000 *	160,000
5	80,000	84,000	30	170,000	180,000
6	54,000	60,000	31	130,000	140,000
7	180,000	110,000	32	710,000 *	1,140,000 *
8	230,000 *	240,000 *	33	110,000	140,000
9	180,000	170,000	34	140,000	160,000
10	80,000	80,000	35	72,000	70,000
11	120,000	140,000	36	78,000	120,000
12	140,000	120,000	37	100,000	70,000
13	130,000	130,000	38	380,000 *	300,000 *
14	110,000	130,000	39	290,000 *	280,000 *
15	90,000	74,000	40	190,000	230,000 *
16	72,000	90,000	41	220,000 *	320,000 *
17	110,000	120,000	42	140,000	170,000
18	360,000 *	510,000 *	43	200,000 (?)	220 000 *
19	800,000 *	740,000 *	44	150,000	190,000
20	110,000	170,000	45	140,000	180,000
21	560,000 *	540,000 *	46	160,000	120,000
22	220,000 *	260,000 *	47	90,000	150,000
23	220,000 *	250,000 *	48	90,000	100,000
24	300,000 *	440,000 *	49	42,000	50,000
25	130,000	170,000	50	100,000	140,000

* Counts exceeding 200,000 are followed by asterisks.

by the committee on the standardization of serologic procedures and laboratories.

SUMMARY AND CONCLUSIONS

Direct microscopic counts were made on 75 milks collected from a "graded" milk shed in Northern Illinois in March, 1948. The counts were made after milk films were stained in sets by the carbolated methylene blue, "undestained" and destained, the Anderson, Moehring, and Gunderson polychrome methylene blue, and the acid-and-water-free stain as developed in this laboratory. The carbolated methylene blue stain was applied to the milk films on the days the milk samples were brought into the laboratory and counted. The stained films were then partially destained in alcohol and again counted. The polychrome methylene blue and the acid-and-water-free stains were applied to two other sets of milk films 7 and 14 days respectively after their preparation. Another set of the first 50 milk films was held over for 90 days and then stained by the acid-and-water-free stain. All counts were studied in several combinations for comparative analyses, as shown in 7 tables and discussions indicated in the body of this report. The pertinent points of the study can be expressed in the following conclusions:

1. The surface tension, and the dye concentration of the two staining solutions recommended on an optional basis in the Ninth Edition of the Standard Methods differ. Reasons are indicated why such an optional recommendation may be regarded as contrary to the concept of standard procedure.

2. Counts of milk films stained by carbolated methylene blue were shown to differ considerably upon reëxamination after partially destaining them in alcohol, as suggested in Standard Methods. The differences were sufficiently great to be of significance not only from a general statistical viewpoint, but also significantly affected the number of specimens in their relation to Grade Placement.

3. The batch of polychrome methylene blue stain used in this study gave counts lower than either of the other two stains with which it was compared. However, the stain produced slides comfortably read under the microscope. With another batch of this stain previously used, significantly higher results had been ob-

tained. Therefore, it appears that the stain has favorable possibilities and merits further study, including attention to standardization of the procedure for the preparation of the dye and its final solution.

4. The acid-and-water-free stain gave the highest number of maximal counts for the series as a whole. The percentage of counts exceeding 200,000 was 22, as compared with 13 and 12 for the other two stains.

5. Bacterial counts of dried milk films stored under satisfactory conditions for as long as 90 days prior to staining with the acid-and-water-free stain were similar to those of preparations stored only 14 days.

6. It would appear that for the purpose of surveys of staining procedures by different milk laboratories, a number of sets of milk films could be prepared in a designated laboratory and distributed with pertinent instructions to widely scattered laboratories for staining and counting. The counts could then be collected by the central laboratory for statistical study and appraisal of results.

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Health Congresses to Be Held in Argentina

The Government of Argentina and the Pan American Sanitary Bureau have announced their sponsorship of the First Inter-American Regional Congress and Second National Congress of Hygiene and Social Medicine to be held in Santa Fe, Argentina, October 21–25, 1949.

In sponsoring this congress, the Pan American Sanitary Bureau is acting in the spirit of the resolutions adopted by the XII Pan American Sanitary Conference, which set as the Bureau's principal objective the promotion of hygiene and public health in the entire Western Hemisphere, through the coördinated efforts of all the countries of the Hemisphere.

Since only a short time is available for making suitable preparations for a Pan American Congress on Hygiene, it was considered desirable to invite only the countries in the southern and eastern regions of South America (Bolivia, Brazil, Chile, Paraguay, Peru, and Uruguay), although invitations will be sent to other distinguished persons in the fields of public health and social medicine in the remaining countries.

Inactivation of Partially Purified Poliomyelitis Virus in Water by Chlorination

III. Experiments With Natural Waters

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THE authors reported in previous publications [1, 2] the results of their investigation on the inactivation by chlorination of partially purified poliomyelitis virus (mouse-adapted Lansing strain) in distilled water. It was found that at a pH range from 6.85 to 7.4, the virus was inactivated within 10 minutes in all water samples with residuals consisting of free chlorine and chloramine. This result was obtained even with as little as 0.05 p.p.m. free chlorine. At a higher pH range (pH 8.95–9.25) the antiviral action of chlorine was decreased. On the other hand, in water samples with residuals consisting only of chloramine (no free chlorine) the virus was usually inactivated in less than 2 hours by 0.5–0.75 p.p.m. residual chloramine, while residual chloramine values of 0.2 p.p.m. or less failed to inactivate the virus.

The present paper is a report on further experiments along the same lines in which representative samples of different natural waters were used instead of distilled water.

MATERIAL AND TECHNIQUES

Water—In order to have a fairly wide variety of natural waters, three different lake waters, two river waters and one well water were used in our experiments. Samples of lake waters were taken from Lake St. Clair (Detroit, Mich.), Lake Michigan, and Baw Beese Lake, a small inland lake in Hillsdale, Mich. The river water samples were taken from Flint River, Flint, Mich., and from River Rouge, Rockford, Mich. In addition to these untreated waters lime-treated well water from the Lansing Water Conditioning Plant was used in order to investigate the effect of chlorination at a high pH.

In contrast to our previous experiments, in which the distilled water was sterilized by boiling, the natural waters were not sterilized. Instead, each sample of natural water was tested for safety by intracerebral inoculation into a few mice prior to the chlorination experiments. In addition, the water samples were examined bacteriologically, with results summarized in Table 1.

Virus—Mouse-adapted Lansing strain of poliomyelitis virus was used. Essentially the same virus purification procedure as that described in our previous publications was used,[1, 2] except that the sedimentation of the virus was carried out at 40,000 r.p.m. (approximately 117,000 g.) for 2 hours instead of 3 hours. Virus preparations purified

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TABLE 1

Results of Bacteriological Examinations of Water Samples

	Bacteria per ml. Agar 37° C. 24 Hrs.	*M.P.N. (Most Probable Number Index)*
Lake St. Clair, Detroit, Mich.	150–490	5–39
Lake Michigan	0	23
Baw Beese Lake, Hillsdale, Mich.	800	0
Flint River, Flint, Mich.	2,500	2,400
River Rouge, Rockford, Mich.	0	240
Well Water, Lime-Treated, Lansing, Mich.	0–2	0–2.2

by one and two cycles of centrifugation contained, in the equivalent of a 10 per cent suspension, an average of 0.049 mg. N/ml. and 0.017 mg. N/ml., respectively.

Chlorination—As in our earlier work, 100 ml. portions of water were used, to which partially purified virus suspensions were added to make a 0.25 per cent or a 0.5 per cent dilution of virus. Chlorination was done by adding chlorine water. The samples were tested for virus content by intracerebral inoculation into white Swiss mice after contact periods of 10, 30, and 60 minutes. Simultaneously with mouse inoculations, residual free chlorine and chloramine were determined by means of the orthotolidine-arsenite test.[3, 4] Since, in some instances, active virus was not detectable after 10 minutes' contact, in spite of the absence of free chlorine (experiments of November 8 and 27 and December 5 and 12, 1946, Table 2), the test for free chlorine was carried out after 5, 10, 30, and 60 minutes in most of the subsequent experiments.

In order to stop the action of chlorine at the end of the contact period, 1–2 drops of a 10 per cent suspension of CNS tissue of normal mice were added to 2 ml. of sample just before injection.

Groups of 20 mice were used for each contact period. The following controls were included in each experiment: 20 mice were inoculated with a suspension of virus in the water used for the experiment, and 20 mice received the same amount of virus in buffered saline. All virus preparations were titrated in mice on the basis of 10 twofold dilutions in buffered saline, and the LD_{50} calculated by the method of Reed and Muench.[5]

EXPERIMENTAL

A. *Experiments with lake waters*

1. *Water from Lake St. Clair, Detroit, Mich.*

The temperature of the water samples used for the different chlorination experiments varied between 19.0°C. and 25.3°C. The pH of the water ranged between 7.90 and 8.14 before addition of virus and chlorine, and between 7.42 and 7.93 after addition of virus and chlorine.

As can be seen from Table 2, there was complete or almost complete inactivation of the virus in less than 10 minutes in all the samples having a residual of slightly less than 0.05 p.p.m. or more free chlorine after a contact period of 5 minutes. There was no difference in this respect in the outcome of the experiment between the water samples containing 0.25 per cent and those containing 0.5 per cent of virus. The corresponding residual free chlorine values after a 10 minute contact varied between traces and slightly less than 0.05 p.p.m.

The results of the experiments with samples containing only traces of residual free chlorine presented some variations. For example, in a water sample containing 0.5 per cent virus and traces of residual free chlorine after contact periods of 5 minutes and 10 minutes (experiment of February 27, 1947), there was complete inactivation of the virus

TABLE 2

Chlorination Experiments with Water from Lake St. Clair

pH of water before addition of virus and chlorine 7.90–8.14
pH of water after addition of virus and chlorine 7.42–7.93
temperature 19.0°–25.3° C.

Date	Virus Preparation	Chlorine Applied in p.p.m.	Residual Chlorine in p.p.m. after. 5 Min. Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min. Free Cl_2	30 Min. Chloramine	60 Min. Free Cl_2	60 Min. Chloramine	Outcome * of Mouse Experiments Injected after: 10 Min.	30 Min.	60 Min.	Controls In Lake Water	Controls In Saline	LD_{50}(%)
Experiments with 0.25 Per cent Virus															
10-31-46	2 cycles †	1.5	...	0.15	0.05	0.05—	0.05	traces	0.05—	0/16	0/17	0/15	19/19	20/20	0.009
11- 8-46	2 cycles	1.2	...	0.15–0.20	0.05–0.15	0.05—	0.05+	0	0.05+	0/19	0/20	0/20	19/19	18/19	0.028
		1.0	...	traces	0.15	0	0.05	0	traces	0/20	0/19	0/20			
11-21-46	2 cycles	0.8	...	0.05—	0.05+	0	0.05+	0	0.05—	0/16	0/18	0/17	19/19	18/20	0.016
		1.0	...	0.1—	0.1+	0	0.1+	0	traces	0/20	0/13	0/15			
11-27-46	2 cycles	0.8	...	traces	0.05	0	0.05	0	0.05—	0/18	0/18	1/17	19/19	17/19	0.038
		1.0	...	0.05	0.1	traces	0.05	0	traces	0/18	0/16	0/16			
12- 5-46	2 cycles	0.75	...	traces	0.05—	0	0.05—	0	traces	0/15	0/16	1/19	16/17	20/20	0.033
		0.6	...	0	0.05—	0	0.05—	0	0	5/15	2/17	3/16			
12-12-46	1 cycle	1.0	...	traces	0.05—	0	0.05—	0	0.05—	0/20	0/18	0/19	16/19	18/20	0.02
		0.6	...	0	0.05—	0	0.05—	0	traces	6/20	5/17	2/18			
12-19-46	1 cycle	0.6	traces	0	0.05—	0	0.05—	0	0.05—	14/19	17/20	16/20	17/20	19/19	0.008
		0.5	traces	0	0.05—	0	0.05—	0	0.05—	17/20	16/19	14/19			
1-15-47	1 cycle	0.75	traces	traces	0.05	traces	0.05	0	0.05	4/18	6/20	3/19	18/19	19/19	0.011
		0.65	traces	traces	0.05	0	0.05	0	0.05	4/20	11/17	8/19			
1-22-47	1 cycle	0.8	traces	traces	0.1	0	0.1	0	0.1—	6/19	7/18	10/20	19/20	19/20	0.028
		0.6	traces	0	0.05+	0	0.05+	0	0.05	16/19	14/20	15/20			
2- 4-47	1 cycle	1.2	0.05—	traces	0.15—	traces	0.15—	0	0.1—	0/19	0/19	0/18	19/19	19/19	0.014
		1.4	0.15–0.20	0.05+	0.15—	0.05—	0.1	traces	0.1—	0/20	0/19	0/20			
2- 7-47	1 cycle	1.0	0.05—	traces	0.1—	traces	0.1—	0	0.1—	1/17	0/20	0/20	19/20	19/19	0.074
		1.3	0.1—	0.05—	0.15+	traces	0.1—	traces	0.1—	0/18	0/16	0/20			
Experiments with 0.5 Per cent Virus															
2-14-47	1 cycle	3.0	0.05—	traces	0.2 —	traces	0.2—	0	0.15	0/18	0/18	0/18	20/20	19/20	0.024
		3.2	0.05—	traces	0.3—	traces	0.2	0	0.2—	0/18	0/17	0/17			
2-20-47	1 cycle	2.8	0.1—	0.05—	0.25	traces	0.2	traces	0.2	1/20	0/19	0/19	19/20	20/20	0.018
		2.5	0.05—	traces	0.2–0.3	traces	0.2	0	0.2	0/19	1/20	0/19			
2-27-47	1 cycle	2.5	0.05	0.05—	0.25	traces	0.2	0	0.2	0/19	1/20	1/19	20/20	20/20	0.009
		2.2	traces	traces	0.2–0.3	0	0.2+	0	0.2—	0/19	0/20	0/19			
3- 6-47	1 cycle	1.7	traces	traces	0.2+	0	0.2+	0	0.2	5/20	4/19	10/20	20/20	19/20	0.029
		2.2	0.05—	traces	0.3—	traces	0.2	0	0.2	0/20	0/19	0/20			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

in less than 10 minutes, while in another sample with similar values of residual free chlorine and only 0.25 per cent virus (experiment of January 22, 1947), there was only partial inactivation of the virus even after a contact period of 1 hour. In other experiments with only traces of residual free chlorine after a contact of 5 minutes, there was either partial or no inactivation of the virus.

The residual chloramine values in these experiments were so low (0.05–0.15 p.p.m. in samples with 0.25 per cent virus and 0.2–0.3 p.p.m. in those with 0.5 per cent virus) that, on the basis of our previous work, they could not be expected to inactivate the virus.

2. *Water from Lake Michigan*

The temperature of the water samples varied between 19.0°C. and 22.0°C. The pH of the water ranged between 8.1 and 8.3 before addition of virus and chlorine, and between 7.60 and 7.85 after addition.

Table 3 shows that, in the samples containing 0.25 per cent virus, the virus was inactivated in less than 10 minutes in all the samples having 0.05 p.p.m. or more residual free chlorine after 5 minute contact. In most of these samples there was no residual free chlorine after a 10 minute contact. In one sample with traces of residual free chlorine after 5 minutes and with none after 10 minutes, there was only partial inactivation after 10 and 30 minutes, but almost complete inactivation after 1 hour (experiment of November 6, 1947).

In the experiments with 0.5 per cent virus, there was no inactivation of the virus even after 1 hour, in one sample with traces, and in another with slightly less than 0.05 p.p.m. residual free chlorine after 5 minutes contact. There was no residual free chlorine in either sample after 10 minutes (experiment of November 25, 1947). On the other hand, in the experiment of January 8, 1948, residual free chlorine values of 0.05 p.p.m. after 5 minutes and traces after 10 minutes, were sufficient for complete inactivation of the virus in less than 10 minutes. Amounts of residual chloramine were slightly higher with this water: 0.15–0.3 p.p.m. in samples with 0.25 per cent virus and 0.3–0.4 p.p.m. in those with 0.5 per cent.

3. *Water from Baw Beese Lake, Hillsdale, Mich.*

The temperature of the samples ranged from 19.0°C. to 23.0°C. The pH after addition of virus and chlorination varied from 7.82 to 8.25.

As shown in Table 4, 0.25 per cent virus was inactivated in less than 10 minutes in a sample with 0.05 p.p.m. residual free chlorine after 5 minutes contact and none after 10 minutes. In another sample, with traces of residual free chlorine after 5 minutes contact and with none after 10 minutes, there was no inactivation of the virus after 10 minutes and only partial inactivation after 1 hour.

In experiments with 0.5 per cent virus, the virus was inactivated in less than 10 minutes in samples with 0.05–0.1 p.p.m. and 0.1–0.15 p.p.m. residual free chlorine after 5 minutes contact, and with traces after a 10 minute contact.

The amounts of residual chloramine in these experiments varied between 0.5 and 1.0 p.p.m. and were higher than in the experiments with water samples from Lake St. Clair and Lake Michigan.

B. *Experiments with river waters*

1. *Water from Flint River*

The temperature of the water samples ranged between 23.0°C. and 25.0°C., the pH between 8.12 and 8.23 before and between 7.90 and 8.21 after addition of virus and chlorination. Only experiments with 0.25 per cent virus were carried out.

As shown in Table 5, there was complete or almost complete inactivation of the virus within 10 minutes after chlorination in the samples with a residual of 0.05 p.p.m. or more free chlorine

TABLE 3

Chlorination Experiments with Water from Lake Michigan

pH of water before addition of virus and chlorine 8.1–8.3
pH of water after addition of virus and chlorine 7.60–7.85
temperature 19.0°–22.0° C.

Date	Virus Preparation	Chlorine Applied in p.p.m.	Residual Chlorine in p.p.m. after: 5 Min. Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min. Free Cl_2	30 Min. Chloramine	60 Min. Free Cl_2	60 Min. Chloramine	Outcome * of Mouse Experiments Injected after: 10 Min.	30 Min.	60 Min.	Controls In Lake Water	Controls In Saline	LD_{50}(%)
Experiments with 0.25 Per cent Partially Purified Virus															
10-28-47	1 cycle †	2.2	0.1	0	0.25	0	0.2	0	0.15	0/18	0/19	0/19	14/16	12/20	0.15
		2.5	0.15	0	0.3+	0	0.25	0	0.2	0/19	0/18	0/19			
11- 6-47	1 cycle	0.15	traces	0	0.15–0.20	0	0.15+	0	0.15+	9/17	5/20	1/19	17/17	18/19	0.027
		1.0	0.05+	0	0.15–0.20	0	0.15–0.20	0	0.15+	1/19	0/18	0/20			
11-13-47	1 cycle	1.8	0.1	0	0.2–0.3	0	0.2–0.3	0	0.2+	0/20	0/20	0/20	17/19	17/19	0 037
		2.2	0.15	0.05	0.3—	0	0.2–0.3	0	0.2–0.3	0/19	0/19	0/19			
Experiments with 0.5 Per cent Partially Purified Virus															
11-25-47	1 cycle	3.5	traces	0	0.3+	0	0.3+	0	0.3—	18/20	11/20	14/19	19/19	19/19	0.0098
		4.0	0.05—	0	0.3	0	0.3	0	0.3	17/19	18/19	16/18			
1- 8-48	1 cycle	4.0	0.05	traces	0.3–0.4	0	0.3–0.4	0	0.3+	0/20	0/20	0/18	20/20	20/20	0.011
		4.5	0.10–0.15	traces	0.5	0	0.4	0	0.4	0/20	0/19	0/20			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

TABLE 4

Chlorination Experiments with Water from Baw Beese Lake

pH of water after addition of virus and chlorine 7.82–8.25
temperature 19.0°–23.0° C.

Date	Virus Preparation	Chlorine Applied in p.p.m.	Residual Chlorine in p.p.m. after: 5 Min. Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min. Free Cl_2	30 Min. Chloramine	60 Min. Free Cl_2	60 Min. Chloramine	Outcome * of Mouse Experiments Injected after: 10 Min.	30 Min.	60 Min.	Controls In Lake Water	Controls In Saline	LD_{50}(%)
Experiments with 0.25 Per cent Partially Purified Virus															
2- 5-48	1 cycle †	3.0	traces	0	0.5	0	0.5	0	0.5	15/20	13/20	7/20	18/19	19/19	0.039
		3.5	0.05	0	0.5+	0	0.5+	0	0.5+	0/19	1/19	0/18			
Experiments with 0.5 Per cent Partially Purified Virus															
3-10-48	1 cycle	4.5	0.05–0.1	traces	0.75	0	0.5–0.75	0	0.5–0.75	0/18	0/20	1/21	17/19	16/19	0.22
		5.0	0.1–0.15	traces	1.0	0	0.75	0	0.75	0/20	0/20	0/20			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

TABLE 5

Chlorination Experiments with Water from Flint River

pH of water before addition of virus and chlorine 8.12–8.23
pH of water after addition of virus and chlorine 7.90–8.21
temperature 23.0°–25.0° C.

Date	Virus Preparation	Chlorine Applied in p.p.m.	Residual Chlorine in p.p.m. after: 5 Min. Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min. Free Cl_2	30 Min. Chloramine	60 Min. Free Cl_2	60 Min. Chloramine	Outcome * of Mouse Experiments Injected after: 10 Min.	30 Min.	60 Min.	Controls: In River Water	Controls: In Saline	LD_{50}(%)
							Experiments with 0.25 Per cent Partially Purified Virus								
3-20-47	2 cycles †	3.0	traces	traces	1.0	0	1.0	0	1.0	0/20	0/18	0/20	18/19	17/20	0.04
		4.0	0.1—	0.05	1.15	0	1.0	0	1.0—	0/19	0/18	0/20			
4- 3-47	1 cycle	2.7	traces	traces	1.0+	0	1.0+	0	1.0—	12/19	9/19	8/17	17/18	17/19	0.01
		3.5	0.05	traces	1.4—	traces	1.0–1.4	0	1.0	1/13	0/16	0/17			
4- 9-47	1 cycle	2.5	traces	traces	1.0+	0	1.0+	0	1.0	3/18	3/20	0/20	20/20	16/18	0.007
		3.0	0.05	traces	1.0+	0	1.0	0	1.0—	0/20	0/19	0/19			
4-18-47	1 cycle	2.0	0	0	0.75	0	0.75	0	0.75	17/20	12/19	14/18	20/20	17/19	0.023
		3.0	traces	traces	1.0+	0	1.0+	0	1.0	2/17	3/19	0/16			
4-23-47	1 cycle	1.8	0	0	0.75—	0	0.75—	0	0.5+	15/16	17/20	14/20	20/20	20/20	better than 0.004
		2.3	traces	traces	0.75–1.0	0	0.75+	0	0.75	13/20	11/20	14/20			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

TABLE 6

Chlorination Experiments with Water from River Rouge

pH of water after addition of virus and chlorine 7.82–8.05
temperature 20.0°–21.0° C.

Date	Virus Preparation	Chlorine Applied in p.p.m.	Residual Chlorine in p.p.m. after: 5 Min. Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min. Free Cl_2	30 Min. Chloramine	60 Min. Free Cl_2	60 Min. Chloramine	Outcome * of Mouse Experiments Injected after: 10 Min.	30 Min.	60 Min.	Controls: In River Water	Controls: In Saline	LD_{50}(%)
							Experiments with 0.25 Per cent Partially Purified Virus								
12-19-47	1 cycle †	3.0	traces	0	0.3–0.4	0	0.3	0	0.2–0.3	1/20	0/19	1/17	18/19	19/20	0.013
		3.5	0.15	0	0.5	0	0.3–0.4	0	0.3	0/16	0/17	0/17			
12-30-47	1 cycle	2.5	0	0	0.3	0	0.3	0	0.2–0.3	0/18	0/20	0/11	20/20	19/20	Could not be calculated
		2.8	0.05–0.1	0	0.3–0.4	0	0.3	0	0.3	1/14	0/20	0/20			
							Experiments with 0.5 Per cent Partially Purified Virus								
1-22-48	1 cycle	5.0	0.05	0	0.75	0	0.5	0	0.5	0/19	0/19	0/20	16/19	19/20	0.034
		5.5	0.05–0.1	traces	0.75	0	0.75	0	0.5	1/19	0/20	0/20			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

TABLE 7

Chlorination Experiments with Lime-Treated Well Water from Lansing Water Conditioning Plant

pH of water before addition of virus and chlorine 10 0–11 25
pH of water after addition of virus and chlorine 8 0–10 5
temperature 21.0°–26 0° C.

Date	Virus Preparation	Chlorine Applied in p p.m.	Residual Chlorine in p p m after 5 Min Free Cl_2	10 Min. Free Cl_2	10 Min. Chloramine	30 Min Free Cl_2	30 Min Chloramine	60 Min Free Cl_2	60 Min Chloramine	Outcome * of Mouse Experiments Injected after 10 Min	30 Min	60 Min	Controls In Well Water	Controls In Saline	LD50(%)
						Experiments with 0 25 Per cent Partially Purified Virus									
3-18-48	1 cycle †	2.0	traces	0	0 75	0	0 75	0	0 75	19 21	14 17	15 20	18/19	19/20	0 039
		2.5	0.05–0.1	traces	0 75-1 0	0	0 75–1 0	0	0 75–1.0	16 20	9/18	4 20			
4- 1-48	1 cycle	3.0	0.1+	0.1	0 75–1.0	0 05	0 75	0	0 75	0/13	0/14	0 20	17/19	16/18	0 15
		3.5	0.2—	0.1–0.15	1 0	0 1—	0 75	0	0 75	0/19	0/18	0 13			
4- 8-48	1 cycle	2.5	0.15—	0 1+	0 75	0	0 75	0	0 75	0/19	0/20	0 20	15/19	17/19	0 081
		2.25	0 05–0.1	0.05	0 75	0	0 75	0	0 75	9 19	3/19	0 20			
4-22-48	1 cycle	3.2	0.1+	0.05+	1 0	0	0 75–1 0	0	0 75–1 0	10/18	5 18	0/20	19/20	16/17	0 036
		3.5	0.15+	0 1+	1 0	0	0 75 1 0	0	0 75–1 0	2/20	0 20	0 19			
						Experiments with 0 5 Per cent Partially Purified Virus									
4-29-48	1 cycle	5.0	0.15	0 05+	1.0	0	1 0	0	0 75–1 0	4/19	2/18	1 17	19/19	19/19	0.05
		6.0	0.3	0.1–0.15	0.9–1.25	0	1 0	0	1 0	1/20	0/17	0/20			
6-17-48	1 cycle	6.0	0.15+	0 1–0 15	1.0	0	1 0	0	1 0	2/16	0 16	0 19	18/18	20/20	0.016
		5.0	0.1+	0.05	0.75–1.0	0	0 75–1.0	0	0 75	2 16	2/20	0/19			

* Number of paralyzed mice over the total number of mice (paralyzed plus survivors)
† Cycles of purification by fractional centrifugation

Plus sign (+) after a figure = slightly more than
Minus sign (—) after a figure = slightly less than

after a 5 minute contact period. The 10 minute readings ranged in these samples from traces to 0.05 p.p.m. residual free chlorine and from slightly more than 1.0 p.p.m. to slightly less than 1.4 p.p.m. residual chloramine.

The results with samples containing only traces of residual free chlorine after 5 minutes contact, were not consistent. For example, in a sample with traces of residual free chlorine after 5 and after 10 minutes contact (with 1.0 p.p.m. chloramine after 10 minutes contact), the virus was completely inactivated in less than 10 minutes (experiment of March 20, 1947). There was definite, but only partial inactivation of the virus after contact periods of 10 and 30 minutes in 2 other samples with traces of residual free chlorine after 5 and after 10 minutes contact (with slightly over 1.0 p.p.m. chloramine) in the experiments of April 3, and of April 18, 1947. In 2 other samples (experiments of April 3 and April 23, 1947) there was very little or no inactivation of the virus under similar conditions.

2. *Water from River Rouge, Rockford, Mich.*

The temperature of the water samples ranged from 20.0°C. to 21.0°C., the pH (after addition of virus, and chlorination) from 7.82 to 8.05.

Experiments with 4 samples containing 0.25 per cent and with 2 samples containing 0.5 per cent virus were carried out. As can be seen from Table 6, the results were particularly favorable in this series of experiments. There was either complete or almost complete inactivation of the virus in all the samples tested. There was no detectable virus after 10 minutes contact, even in a sample in which there was no residual free chlorine after 5 minutes, while 100 per cent of the control mice developed paralysis (experiment of December 30, 1947). There was only 0.3 p.p.m. residual chloramine after 10 minutes contact.

C. *Lime-treated well water from the Lansing Water Conditioning Plant, Lansing, Mich.*

As already pointed out, this lime-treated water was included in our experiments in order to investigate the effect of chlorination at a high pH range.

The temperature of the water samples in this series of experments ranged between 21.0°C. and 26.0°C. The pH range of the water before addition of virus and chlorine was from 10.0 to 11.25. After virus was added and chlorine applied, the pH ranged between 8.0 and 10.5.

As could be anticipated, the results obtained in this series of experiments were not as favorable as those reported in the foregoing sections.

a. *Experiments with 0.25 per cent virus.*

The data presented in Table 7 show that, in the experiment of March 18, 1948, there was no inactivation of the virus even after 1 hour in a sample with traces of residual free chlorine after a 5 minute contact and no residual free chlorine after 10 minutes contact, and only partial inactivaton in another sample with 0.05–0.1 p.p.m. residual free chlorine after 5 minutes and traces of free chlorine after 10 minutes contact. There was only partial inactivation of the virus after 30 minutes and complete inactivation after 1 hour in a sample with 0.05–0.1 p.p.m. residual free chlorine after 5 minutes contact and 0.05 p.p.m. after 10 minutes contact (experiment of April 8, 1948), and in another sample with slightly more than 0.1 p.p.m. residual chlorine after 5 minutes and slightly more than 0.05 p.p.m. after 10 minutes contact (experiment of April 22, 1948). The virus was almost completely inactivated within 10 minutes, and completely within 30 minutes in a sample with a residual of slightly more than 0.15 p.p.m. after 5 minutes and slightly more than 0.1 p.p.m. after 10 minutes contact (experi-

ment of April 22, 1948). Complete inactivation of the virus within 10 minutes was achieved with the following residual free chlorine values: Slightly more than 0.1 p.p.m. after 5 minutes contact and 0.1 p.p.m. after 10 minutes; slightly less than 0.2 p.p.m. after 5 minutes and 0.10–0.15 p.p.m. after 10 minutes contact (experiment of April 1, 1948); slightly less than 0.15 p.p.m. after 5 minutes and slightly more than 0.1 p.p.m. after 10 minutes (experiment of April 8, 1948). The residual chloramine amounts in all these experiments ranged between 0.75 and 1.0 p.p.m.

b. *Experiments with 0.5 per cent virus*

As shown in Table 7, in 2 of the water samples with residual free chlorine amounts of 0.3 p.p.m. after 5 minutes and 0.10–0.15 p.p.m. after 10 minutes in one case and slightly more than 0.15 p.p.m. after 5 minutes and 0.10–0.15 p.p.m. after 10 minutes in the other, there was no detectable virus after 30 minutes in either sample, and only very little after 10 minutes contact. In the 2 other samples, with residual free chlorine amounts of 0.15 p.p.m. and slightly more than 0.1 p.p.m. after 5 minutes, respectively, and slightly more than 0.05 p.p.m. after 10 minutes, complete or almost complete inactivation was achieved within 1 hour. The residual chloramine values in these experiments ranged between 0.75 p.p.m. and 1.25 p.p.m.

It seems worth mentioning that the alkalinity of these lime-treated water samples did not affect the virus. In a few additional controls the virus suspended in these water samples was exposed to the action of a high pH for as long as 4 hours without any decrease of the virus activity.

SUMMARY

The inactivation of partially purified poliomyelitis virus (mouse adapted Lansing strain) in natural waters was studied by chlorination of 100 ml. portions of water to which virus was added in final concentrations of 0.25 and 0.5 per cent. Samples of three different lake waters, two river waters, and one lime-treated well water were used for the experiments.

In samples of natural waters having a pH range of 7.9–8.3, the virus was consistently inactivated within 10 minutes in presence of 0.05 p.p.m. residual free chlorine at the end of this contact period. In many instances, but not always, the virus was inactivated by still smaller amounts of free residual chlorine.

In experiments at a higher pH range (pH 10.0–11.25), 0.1 to 0.15 p.p.m. residual free chlorine were necessary to achieve the same results.

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Medical Care Activities of Full-time Health Departments

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THERE has long been a need for more adequate data concerning the medical care activities of full-time health departments. In response to many requests for information, the Subcommittee on Medical Care of the American Public Health Association instructed its staff to undertake an inquiry into the extent to which health departments provide therapeutic services in their specialized health programs, the degree to which they administer general medical care services and the type and extent of health department relationships with hospitals.*

A review of the functions of federal and state health agencies indicates that they have substantial responsibilities for the provision of medical care. The U. S. Public Health Service operates a network of 24 marine hospitals, 18 dispensaries, and 96 medical relief stations for merchant seamen, members of the U. S. Coast Guard and their dependents, federal employee compensation cases, and other beneficiaries. The Public Health Service also operates 2 hospitals for drug addicts and mental patients, provides medical service for 27 federal penal and correctional institutions, and is administratively responsible for Freedmen's Hospital in Washington, D. C.

In addition, the Public Health Service and the U. S. Children's Bureau adminster federal grants-in-aid to the states for specialized health programs, many of which include the provision of medical care to a greater or lesser degree.

Some indication of the extent of state health department responsibility for medical care is given in Table 1.†

In addition, 45 state and territorial health departments administer hospital survey and construction programs and 40 state and territorial health departments are responsible for hospital licensure.[1] The New York State Health Department administers subsidies to public general hospitals in small counties, while the Maryland State Department of Health operates several chronic disease hospitals and administers a general medical care program for the indigent and medically indigent.

No attempt was made to obtain further details concerning the therapeutic services provided by federal and state health agencies. A more intensive study, however, was made during 1947 of the medical care functions of local health departments (including state health districts) by means of a questionnaire addressed to every full-time local health department in the United States.

It is evident that the complex pattern of medical care activities of local health

* The authors are grateful to the Rockefeller Foundation for the grant of funds which made this study possible.

† Adapted from *Variations in Public Health Programs of State Health Departments*, Federal Security Agency, Public Health Service, Mar., 1948.

TABLE 1

State Health Department Responsibility for Medical Care

Activity	*Number of State Health Departments * Performing in 1946*	*Number of State Health Departments * Planning to Initiate in 1947*
Tuberculosis Control		
Administrative supervision of state tuberculosis sanatoria	17	3
Cancer Services		
Payment, through financial grants-in-aid or case by-case arrangement, of local hospitals accepting cancer patients	12	9
Direct operation or financial support of cancer treatment clinics	8	9
Operation of hospital facilities for treatment of cancer patients	5	4
School Health Services		
Direct provision or financial support of corrective service for school children with cardiac conditions	14	2
Direct provision or financial support of corrective service for school children with eye, ear, nose, or throat conditions	14	0
Direct provision or financial support of corrective service for school children with visual defects	13	0
Dental Services		
Direct performance or financial support of corrective dentistry for school children	35	2
Direct performance or financial support of corrective dentistry for preschool children	31	3
Direct performance or financial support of corrective dentistry for prenatal patients	23	0
Mental Hygiene		
Direct operation or financial support of psychiatric diagnostic or treatment services for children, or both	9	3
Direct operation or financial support of psychiatric diagnostic or treatment services for adults, or both	7	2
Venereal Disease Control		
Direct operation or financial support of venereal disease treatment clinics	49	0
Direct operation or financial support of venereal disease rapid treatment centers	36	4
Crippled Children †		
Direct operation or financial support of clinics for crippled children	31	0
Payment of local hospitals for care of crippled children	31	0
Payment for medical service other than that provided at clinics	26	1
Provision of convalescent home care	24	0
Operation of hospital facilities for crippled children	10	0

* Includes the 48 states, the District of Columbia, and the Territories of Alaska, Hawaii, Puerto Rico, and the Virgin Islands.

† Refers to activities performed in 1947 and planned for initiation in 1948. Unpublished data, Bureau of State Services, U. S. Public Health Service.

departments throughout the United States cannot be presented accurately and thoroughly on the basis of questionnaire responses. However, this study represents an initial attempt to obtain some picture, albeit fragmentary, of the medical care activities of full-time local health departments. On the basis of field studies currently under way, it is planned to describe at a later date and in considerably greater detail the general medical care programs administered by full-time local health departments, as well as the coördinated activities of hospitals and health departments that are jointly housed.

NATURE OF THE RESPONSE

All of the 1,385 full-time local health units in the United States were canvassed, and 50 per cent provided some information on the questionnaires. The percentage of response ranged from 44 per cent for city health units to 56 per cent for city-county units. A proportionately larger number of returns was received from the health departments serving large communities than from those serving the smaller communities. Thus, three-fifths of the health departments serving a population of 100,000 and over responded as compared with 46 per cent of health departments in

communities of less than 25,000 persons.

Returns were received from local health departments in all but 4 of the states. In 6 states with 20 or more full-time local health units the response was 65 per cent or better, while in 5 states less than 35 per cent provided returns. There were no returns received from Nevada, South Dakota, Wyoming, and Vermont, which together contain no more than 5 full-time local health units.

While the response was quite good, it should be noted that it is not a representative sample in the statistical sense. It is likely that health departments providing more extensive services reported more frequently than those whose activities were much more limited.

MEDICAL CARE IN SPECIALIZED HEALTH DEPARTMENT PROGRAMS

The precise role of the local health department in providing curative services in specialized health programs is difficult to determine. The dispersion of health functions among governmental agencies at the federal and state levels is compounded considerably at the local level where voluntary as well as local, state, and even federal public agencies either jointly or separately provide health services to the community.

Because of the broad dispersion of health functions and the numerous variations in the patterns of providing services to the community, it was not possible to obtain a truly accurate picture of the responsibility of local health departments in providing curative services in the specialized programs. Where services were administered directly by health departments there was no problem in reporting. However, in the many instances in which the health department's participation in a program was less direct, varying from the furnishing of auxiliary personnel or facilities to the authorization or referral of persons for care furnished by other agencies, there were some differences in interpretation by health officers as to the local health department's role in providing care. For example, local health departments frequently referred persons with venereal disease for care in rapid treatment centers administered by the state or federal agency; some health officers reported this activity as medical care provided by the local health department while others did not regard it as part of their local health department's services to the community.

The confusion evident in the reporting suggests that the data presented in Table 2 must be interpreted with caution and should only be considered as a rough

TABLE 2

Per cent of Reporting Full-time Local Health Departments Which Provide Specified Services in Specialized Health Programs, 1947 *

Program	Per cent of Health Departments Providing: Diagnosis and Treatment	Diagnosis Only	No Program
Venereal Disease	82	6	12
Tuberculosis	50	36	14
Crippled Children	43	19	38
Child Health	32	46	22
Dental Health	29	17	54
Communicable Disease	25	59	16
Maternal Health			
Prenatal Clinics	20	28	52
Delivery	11	–	89
Cancer	18	10	72
Mental Hygiene	10	10	80
Cardiac	7	13	79

* Based upon a total of 690 reporting health units.

indication of the extent to which health departments either directly or indirectly furnish therapeutic services in these programs.

Table 2 summarizes the pattern of therapeutic services reported by health departments. Treatment includes services provided either in the office, home, clinic, or hospital, although the latter two were most frequently indicated. It is quite apparent that the health department's responsibility for providing treatment for venereal disease has been well established, in contrast with the relatively small amount of medical care reported in one of the oldest of health department activities — the control of acute communicable diseases. More than 80 per cent of the reporting health departments provided medical care for venereal disease, whereas major emphasis in the acute communicable disease programs was placed upon diagnostic services, with only 25 per cent of the reporting health departments providing treatment. The tuberculosis and crippled children's programs were characterized by a good deal of therapeutic care.

The recency of health department activities in the fields of cancer, heart disease, and mental hygiene is evidenced by the large proportion of health departments which failed to report such programs.

While information with regard to the population eligible for services was incompletely reported, in many instances diagnostic and treatment services were restricted to low income groups even in such programs as venereal disease and tuberculosis. Restrictions on the population receiving services varied with the type of care furnished. Thus, hospital care was apparently more sharply limited to low income groups than treatment in clinics, whereas diagnostic services were more frequently made available without limitations.

GENERAL MEDICAL CARE PROGRAMS

A total of 66 local health departments reported that they provided general medical care services of varied types. Only half of these health departments administered what might be considered to be fairly comprehensive programs, while the others reported limited curative services.

General medical care programs were reported in 25 states and the District of Columbia. However, apart from the state of Maryland in which all full-time local health departments administer a general medical care program, there was no major geographic concentration of programs.*

The relative frequency of general medical care programs was found to be associated to some extent with the size of the community served. The proportion of health departments providing general medical care varied from 7 per cent of the 129 reporting health units

* Only 9 of the 24 full-time local health units in Maryland replied to the questionnaire and were included in this report.

TABLE 3

Distribution of Full-time Local Health Departments Reporting General Medical Care Services by Population Served, 1947

Population Served	*Number of Health Departments Reporting*	*Health Departments Providing General Medical Care Services*	
		Number	*Per-cent*
Total	690	66	10
500,000 and over	12	3	25
100,000 – 500,000	127	17	13
50,000 – 100,000	175	17	10
25,000 – 50,000	247	20	8
Under 25,000	129	9	7

in areas with a population under 25,000, to 14 per cent of the 139 health departments serving a population of 100,000 and over (Table 3).

The programs varied considerably with respect to the scope of services provided, the precise role of the health department in administering medical care, the groups eligible for services, etc. Thus, in one instance the role of the health department in administering medical care was limited to the authorization of hospital services. On the other hand, a number of rather comprehensive programs were reported including physicians' services in home, office, or clinic, hospitalization, nursing, dental care, and drugs. Table 4 indicates the extent of the various services provided by health departments administering these programs.

TABLE 4

Number of Reporting Full-time Local Health Departments Providing General Medical Care by Type of Service, 1947

Type of Service	*Number of Health Departments*
Total health departments reporting	690
Total Programs	66
Physicians' Services	63
Office	32
Home	42
Clinic	42
General Hospitalization	20
Surgical Services	25
Other Specialist Services	29
Dental Care	22
Nursing Care	18
Drugs	47

Physicians' services were provided by various methods. In some instances the health officers actually rendered services, but generally they administered programs in which care was provided by full- or part-time salaried physicians, by private physicians paid on a fee-for-service basis, or by the staff of general hospitals operated by the health department.

Almost without exception, the medical care programs were restricted to the very lowest income groups, variously identified as indigent or medically indigent. These terms were not clearly defined by the reporting health officers. A few health departments also furnished medical care to persons in county institutions or jails. One city health department reported a rather large-scale emergency service while another provided treatment for injured city employees as well as indigent transients.

Physicians' services in home, office, or clinic were included in all but three of the programs. Physicians' services in the home were reported in about two-thirds of the 66 reported programs.

Twenty local health departments included general hospital care in their programs. However, the responsibilities of the health departments providing this service varied considerably. Five of the larger municipal health departments actually administered general hospitals,* 10 health units assumed financial responsibility for persons receiving hospitalization, while 5 health departments were responsible only for authorizing hospital care. The number of persons receiving hospital care during 1946 ranged from 20 in one county to approximately 25,000 persons in one of the larger cities.

Fairly extensive specialist services were available in the larger city programs, particularly those in which the hospitals were administered by the health department. However, few of the smaller programs reported such services. The specialist services reported included surgery, dermatology, cardiology, eye, ear, nose, and throat, gynecology, pediatrics, and psychiatry.

Dental and nursing services were available in about one-third of the reported programs. Few details were supplied with regard to dental and nursing care, but they did not appear to represent extensive services except in a few instances. About two-thirds of the 66 health departments which reported pro-

* Philadelphia, Pa., Washington, D. C., San Francisco, Calif., Kansas City, Mo., Louisville, Ky.

grams provided some drugs for authorized persons, either through clinic or hospital dispensaries or through arrangement with private pharmacies.

Laboratory services including blood chemistry, clinical bacteriology, urinalysis and x-rays were generally provided by the health departments, although it was not possible to differentiate between the services furnished in connection with the specialized and the general medical care programs. These services were provided by various agencies such as hospitals, branch state laboratories, and local health department laboratories.

HOSPITAL-HEALTH DEPARTMENT RELATIONSHIPS

Evidence of the character and extent of hospital-health department relationships is presented in Table 5. The performance of various health department functions in general hospitals was reported by a little over one-fourth of the health units reporting. Although reporting on specific activities was incomplete, the utilization of hospital facilities was most frequently noted in connection with the tuberculosis and venereal disease programs, with 92 health departments maintaining tuberculosis clinics or having chest x-rays performed in hospitals, and 60 health departments utilizing hospitals to provide diagnostic and treatment services for venereal disease. The housing of crippled children's clinics in hospitals was mentioned by 31 health departments, maternal health clinics by 23, child health clinics by 17 health departments and cancer clinics by 14 health departments. Only 4 health departments indicated the utilization of hospitals for dental clinics even though almost half of the reporting health units provided dental services as part of their public health program. A few health departments mentioned the use of hospital facilities for cardiac and mental hygiene clinics; these are relatively new health department activities and most of the reporting health units did not administer cardiac and mental hygiene programs.

Thirty health departments indicated that their laboratory services were performed in hospitals. Other health department activities conducted in hospitals included immunizations and tonsillectomies.

More than a third of all reporting health officers indicated that they were members of the medical staff of a general hospital. Appointment of health officers to general hospital staffs has been recommended in the recent policy statement on "Coördination of Hospitals and Health Departments" by the American Hospital Association and American Public Health Association.[2]

Only 8 health departments reported that they were housed in combination with a hospital, while 23 reported that they were housed adjacent to one. The American Hospital Association and the American Public Health Association have "strongly recommended that,

TABLE 5

Number of Full-time Local Health Departments Reporting Specified Relationship to Hospital, 1947

Relationship	*Number of Health Departments*	*Per cent of Total Health Departments Reporting*
Total health departments reporting	690	100
Health Department Functions Performed in General Hospitals	184	27
Health Officer—Member of Medical Staff of General Hospital	236	34
Health Depts. Housed:		
In combination with hospital	8	1
Adjacent to hospital	23	3
Inspect or License Hospitals *	164	24

* Few local health departments licensed hospitals; inspection was usually limited to maternity sections of hospitals and sanitary inspections of hospital facilities.

wherever circumstances justify and permit, there should be joint housing of hospitals and health departments, and, if possible, the offices of physicians and dentists. Although coördination of the activities of hospitals and health departments can be accomplished even if they are not closely integrated physically, it is most feasible when there is joint housing of the hospital and health department. The common use of laboratory and clinic facilities, which is difficult to achieve when the two institutions are physically separated, occurs readily when they are housed together. The planning of integrated programs is facilitated by joint housing and their administration is made smoother and more efficient."[3]

That there is now a trend toward joint housing of hospitals and health departments is indicated by the fact that of the 107 applications received by the U. S. Public Health Service up to December 31, 1948, for the construction of health centers, 25, or about one-fourth, contemplated a combined health department-hospital unit.[4]

Hospital licensure is fundamentally a state agency responsibility. Although hospital inspection and licensure was reported by approximately one-fourth of the local health units reporting, only a few of the larger health departments actually licensed hospitals. The activities more commonly reported were inspection of the maternity sections of hospitals and the sanitary inspection of hospital facilities. In a few areas state licensure of hospitals and convalescent homes is preceded by local health department inspection and approval.

SUMMARY

Data are presented on the substantial responsibilities of federal and state health agencies for the provision of medical care.

Information on the medical care activities of local health departments was obtained by means of a questionnaire sent to each of the 1,385 full-time local health units in the United States. Responses were received from 690 local health departments, or approximately one-half of the total.

Although it has not been possible, on the basis of questionnaire responses, to present a complete and accurate picture of the curative services furnished by full-time local health departments, the data obtained serve to confirm the fact that a considerable number of health departments have advanced beyond the stage of assuming responsibility for purely preventive services. In every one of the specialized health programs administered by local health departments, a substantial number of health units reported the provision of therapeutic as well as diagnostic services. Furthermore, a significant though relatively small number of local health departments reported that they were administering general medical care programs. Considerable variations were noted in the scope and content of these programs, ranging from minimum services to the provision of rather comprehensive general medical care.

While combined or adjacent housing of hospitals and health departments was infrequent, one-third of the reporting local health officers stated that they were members of the medical staff of general hospitals, and approximately one-fourth of the reporting health departments have achieved working relationships with general hospitals, utilizing their facilities for various health department programs and activities.

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Histoplasmosis: Study of Reactors to Histoplasmin.

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THIS study of the reactors to histoplasmin as compared to those reacting to tuberculin was carried out at Berea College, Berea, Ky., by the Student Health Service with coöperation of the State Department of Health of Kentucky.

Berea College is located on the border of the Southern Appalachian mountain area. Most of the students come from the mountain counties of 8 states—Kentucky, Tennessee, Virginia, West Virginia, North Carolina, South Carolina, Georgia and Alabama, mostly from rural homes. The largest group comes from Kentucky.

Histoplasma capsulatum infections have been found in part of this area. The Berea College Student Health Service has carried on a tuberculosis case finding study since 1931. Thousands of roentgenograms have been made. Many students were found with lung calcifications who had a negative tuberculin test. Some of these were rejected by Selective Service on the basis of roentgenograms.

The publication of the studies of Christie and Peterson [1, 2] and the report of Palmer [3] demonstrated by the means of skin tests the probability of benign histoplasmosis in part of this area. We questioned whether the lung calcifications in our students might have this histoplasmosis as an etiological factor. Previous reports by Darling [4–6] and Parsons [7] had suggested this condition as a fatal infection only rarely seen. After correspondence with Dr. Palmer and Dr. Christie concerning our situation and program, we instituted a special study in November, 1946.

Histoplasmin was obtained from the U. S. Public Health Service. It was used in 1:1,000 dilution; 0.1 ml. was injected in the forearm intradermally. Purified Protein Derivative of Tuberculin (Parke, Davis & Company) was used for the Mantoux test which was given at the same time. The dosage was 0.0001 mg. on advice of Dr. Palmer.[8]

All tests were read in 48 hours. Chest roentgenograms, using 14 x 17″ x-ray films, were made possible by the cooperation of the Tuberculosis Control Division of the Kentucky State Department of Health. Flat films were taken of about 1,200 students. On 1,004 of these we had complete data, and they are included in Table 1. Incomplete information was largely in the field of residence data.

The films were read by the writer and by Dr. E. N. Maxwell of the Kentucky State Department of Health. They were read independently and, also, together, to correlate results. Readings were made without knowledge of the skin test reactions. Data were obtained in regard to age, sex, and residence.

The tables show the results of analyzing the total data. If a person had moved about so that there was no one long continued residence, we left residence unclassified. No one knows how long a residence is required to become

a reactor. If all but four years had been in a home county or adjoining county, the residence was classified. In many cases the numbers from a given county were so small as to have little statistical significance. This is also true of some state groups. The figures are given for what they may be worth.

The majority of those tested fell in the age group between 16 and 24. The numbers in other age groups are too small for statistical purposes. They include faculty members and some faculty children. Data on some of the younger children, who have lived in Berea only, suggest that a long residence is not necessary to become sensitized to histoplasmin. The other age groups are included to complete the picture as we found it. Thirty-three per cent of those tested reacted to the Mantoux test, 41 per cent of the males and 25 per cent of the females. Fifty per cent of those tested reacted to histoplasmin, 58 per cent of the males and 44 per cent of the females. Some of the skin test results

TABLE 1

Summary of Skin Tests by Age Groups and Sex

		Mantoux Test			*Histoplasmin Test*		
		Pos.	*Neg.*	*Per cent Pos.*	*Pos.*	*Neg.*	*Per cent Pos.*
Under 12	Male	1	2	33	3	0	100
	Female	0	1	0	1	1	100
	Total	1	3	25	4	1	100
13–15	Male	2	24	8	16	10	61
	Female	0	27	0	13	14	48
	Total	2	51	4	29	24	55
16–18	Male	47	113	29	75	86	46
	Female	45	196	18	81	153	36
	Total	92	309	23	156	239	39
19–21	Male	44	69	39	66	51	59
	Female	67	218	23	129	151	46
	Total	111	287	28	195	202	48
22–24	Male	54	56	50	67	41	62
	Female	19	50	27	35	33	51
	Total	73	106	40	102	74	58
25–27	Male	27	36	43	41	21	66
	Female	11	10	50	11	9	55
	Total	38	46	45	52	30	63
28–30	Male	15	6	72	11	9	55
	Female	5	0	100	4	1	80
	Total	20	6	77	15	10	60
Over 30	Male	37	10	79	34	10	77
	Female	31	13	70	29	20	59
	Total	68	23	74	63	30	69
Total	Male	227	316	41	313	228	58
Total	Female	178	515	25	303	381	44
Grand Total		405	831	33	616	609	50

382 individuals reacted to the Histoplasmin test but not Mantoux.
224 individuals reacted to both tests.
168 were negative to the Histoplasmin test but reacted to Mantoux.

TABLE 2

Summary of Skin Tests by Residence

(Mountain Counties of 8 States Contrasted with Plain Counties)

	Mantoux Test			*Histoplasmin*			*Positive to Both*	*Negative to Both*
	Pos.	*Neg.*	*Per cent Pos.*	*Pos.*	*Neg.*	*Per cent Pos.*		
Kentucky								
Mountain	184	328	36	302	207	59	113	135
Plain	33	56	37	66	23	74	25	17
Total	217	384	41	368	230	61	138	153
Tennessee								
Mountain	11	38	22	27	20	47	8	17
Plain	2	8	20	7	2	77	1	2
Total	13	46	22	34	22	60	9	19
West Virginia								
Mountain	25	41	38	22	44	33	11	29
Plain	9	19	32	10	17	37	3	10
Total	34	60	34	32	61	37	14	39
Virginia								
Mountain	17	60	22	24	52	32	6	41
Plain	1	10	9	4	7	36	0	6
Total	18	70	20	28	59	32	6	47
North Carolina								
Mountain	15	63	19	14	64	26	2	51
Plain	2	11	15	1	13	12	0	10
Total	17	74	18	15	77	23	2	61
South Carolina								
Mountain	1	5	17	1	5	17	1	4
Plain	1	5	17	2	3	40	1	3
Total	2	10	17	3	8	27	2	7
Georgia								
Mountain	1	4	20	1	5	17	0	4
Plain	2	5	28	0	7	0	0	5
Total	3	9	25	1	12	7	0	9
Alabama								
Mountain	10	10	50	14	6	70	7	2
Plain	2	2	50	1	3	25	1	2
Total	12	12	50	15	9	65	8	4
Ohio	5	19	20	14	8	63	2	6
New England States	4	5	44	2	7	22	2	5
North Atlantic States	3	15	17	8	9	47	3	9
North Central States	8	11	42	13	6	68	5	3
South Central States	0	3	0	2	1	66	..	..
South Western States	0	1	0	1	0	100	..	..
Mid-western States	3	7	30	6	4	60	1	2
Western States	4	4	50	2	6	25	1	3
Foreign	16	15	50	8	23	38	6	13
Residence short time 1 place	46	84	35	63	67	48	24	46
Residence not given	0	1	0	1	0	100	..	..
Grand Total	405	831	33	616	609	50	223	226

were questionable. These are not recorded in the tables but they account for the differences in totals with Mantoux compared to totals with histoplasmin test. Table 1 presents a summary of the test results by sex and age. (Statistical data were compiled with the assistance of the State Department of Health.)

The summary of the results of tuberculin tests in 91 colleges this same year showed 22.6 per cent males and 9.4 per cent females as reactors, or 19 per cent of both.[9]

Table 2 classifies the reactors according to residence. It willl be noted that the highest percentage of reactors was found in those giving Kentucky and Tennessee as their residence. Because most of our students come from the mountain counties of the South we have separated the residence by mountain area and so-called plain area of those states. The number with residence out of the mountains and in other states is too low for statistical value but shows our findings.

Madison County of Kentucky, in which Berea is located, is on the border of the mountains and the Blue Grass area. Over 100 individuals living in the county were tested with 70 per cent reactors.

Table 3 emphasizes the importance of the tuberculin test if we are to find those who have been infected. Lung calcifications alone cannot be used in this area as evidence of primary tuberculosis. Fifty-one per cent of those found with lung calcification had negative Mantoux tests. Only 13 per cent of those positive to Mantoux and not to histoplasmin test showed lung calcification, while 22 per cent of those positive to both showed calcification. There were 71 individuals with x-ray findings identical with those usually called calcification due to tuberculosis who had no reaction to the Mantoux test but were positive to the histoplasmin test. Histoplasmosis must be considered in the future in the differential diagnosis of lung calcifications found on reontgen-ray examination along with tuberculosis, coccidioidomycosis and sarcoidosis.

Table 3, classification of the roentgen-ray findings, is self explanatory. The questionable cases and those with no films recorded are included to show their distribution in the skin tests.

Clinical signs and symptoms of fatal histoplasmosis were reported by Parsons and Zarafonetis,[7] McLeod, Emmons, Ross and Burke,[10] and Christie.[1, 2, 11] We are especially interested in the symptomatology of subclinical cases discov-

TABLE 3

Summary of Roentgen-Ray Findings

Classification	*Pos. Mant. Pos. Hist.*	*Pos. Mant. Neg Hist*	*Neg. Mant. Pos. Hist.*	*Neg. Mant. Neg. Hist.*
1. Negative	118	124	246	327
2. Definite hilar calcification	5	3	15	4
3. Probable hilar calcification	3	0	4	3
4. Definite parenchymal calcification (1–4 foci)	15	4	21	1
5. Probable parenchymal calcification (1–4 foci)	8	1	6	2
6. Parenchymal calcification (5 or more foci)	0	1	0	0
7. Definite hilar and parenchymal calcification	15	3	16	4
8. Probable hilar and parenchymal calcification	3	1	2	0
9. Definite hilar calcification, probable parenchymal	0	1	4	1
10. Probable hilar and definite parenchymal calcification	1	0	3	0
11. Questionable calcification	7	6	0	10
12. Parenchymal infiltration or cavitation	0	4	0	0
13. No x-ray	49	10	56	76
14. Other chest pathology	0	1	1	1
Total positive x-rays	50	18	71	15

Two previously unknown active cases of pulmonary tuberculosis were discovered in this survey.

ered by the skin test and roentgenogram studies. We have not that information now. Long-term studies should be carried out with children living in areas where the tests show a high percentage of reactors to histoplasmin. Careful clinical history recorded as the children grow older, plus repeated skin tests and roentgen examinations, may reveal a symptom complex. We know that children develop histoplasmin reactions early in life and show extensive pulmonary calcification as well. So these studies must be begun early in life.

Some question the validity of the assumption that we are really discovering subclinical cases of histoplasmosis in this way. Others question the specificity of the test. And there are those who disagree with the assumption that the lung calcification revealed in a study such as this may actually be due to histoplasmosis. But there does seem to be good circumstantial evidence, and thus far no other explanation has been found to fit the picture.

These studies emphasize the importance of the histoplasmin test in this area. They show that the tuberculin test continues to have importance since we cannot differentiate by films between the lung calcification of primary tuberculosis and this condition.

SUMMARY

1. Results of skin tests using tuberculin and histoplasmin in students at Berea College are shown in tables.

2. The finding of 50 per cent positive reactors to histoplasmin further confirms this area as one infected with the fungus.

3. The tables show the relationship between reactors to tuberculin and histoplasmin and the x-ray studies of the group.

4. A significant number of students with negative tuberculin tests but positive histoplasmin tests showed lung calcification.

5. The tuberculin test is still an important procedure in the diagnosis of tubercular lung calcification.

6. Emphasis is placed on the need for long continued studies of small children in this area to discover the symptomatology of subclinical histoplasmosis.

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Needs and Future Prospects for Integrating Marriage and Divorce Data With Other Vital Statistics*

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THERE is widespread and increasing recognition of the importance of family data for many aspects of public health. Examples of this recognition are not hard to find. Records on various types of diseases are kept on a *family* basis. Even in the formation of a family, about three-fourths of the states have provided by law that persons getting married must meet certain health standards. Not only the immediate physical implications in such matters as contagion, home care, etc., but also the broader health implications of the effects of family relationships on the person's physical and mental well-being are obvious, particularly for chronic diseases and for rehabilitation. Moreover, the growing emphasis on community and social welfare aspects of health makes family data indispensable for broader analysis.

Yet, in at least one important segment of our knowledge about the family, our data are sadly lacking. I refer to detailed information about marriage and divorce; the former has been termed "the birth of the family," while the latter may be thought of as "the death of the family"—not its exclusive type of mortality, but a growing type in recent decades. So we have this paradox: there is recognition everywhere of the health implications of the family—even registers are kept on a family basis—but our knowledge is deficient on such elementary matters as how many families are being formed and dissolved, and what are the characteristics of the people to whom these events are occurring.

Although the United States is in the forefront in the achievement of knowledge about many aspects of health and welfare, it lags behind many other nations in the matter of detailed vital statistics of marriages and divorces. Many people still do not realize how deficient this nation is in such data. Almost daily, requests are received by the National Office of Vital Statistics in the Public Health Service of the Federal Security Agency from health workers, sociological researchers, other investigators, public speakers, and writers, and people in all walks of life, for statistical details on marriages and divorces, such as they are accustomed to receive on the vital statistics of births and deaths; and many of them seem surprised when such data cannot be furnished. The present program of the National Office of Vital Statistics with respect to marriages and divorces provides only figures (in some cases, estimates only) on the numbers of occurrences with no detailed statistics of any

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kind.[1] National statistics on age, place of residence including population-size group, rural-urban, etc., previous marital status, number of former marriages and how terminated, duration of marriage prior to divorce, divorces granted to parents and to childless couples, legal grounds ("causes") of divorce, and other items needed to throw light on many questions concerning family formation and family dissolution, are lacking.

As might be expected, where data are lacking, some people rush in with broad answers not based on facts. An outstanding example of this is the erroneous use of the ratio of divorces occurring in a single year to marriages occurring in that year as an indication of how many marriages do or do not end in divorce. We have all seen the widely quoted assertion that "one out of every three marriages is ending in divorce." This is based on a misinterpretation of 1945 figures. In that year, there was approximately one divorce granted for every three marriages performed; but most of those divorces were not granted to the people who got married that year, nor were one-third of all marriages ending in divorce that year! Only if such a ratio remained constant for years would this interpretation be valid. As a matter of fact, the ratio changed to approximately "one in four" in the two succeeding years, 1946 and 1947, but the publicists seemingly prefer to misuse the "one in three" ratio rather than the "one in four." In calling attention to this misuse, I am not overlooking the fact that the divorce rate has increased drastically in this nation during the 81 year period for which we have national estimates; but I am citing the misuse merely as one example of situations where adequate data are lacking from which interpretations could be made having obvious importance for health planning.

Not only is a nation-wide program of detailed marriage and divorce statistics lacking, but many states have no systems of centralized records of marriages and divorces which would pave the way for state and national statistics. Even in those states in which the original records are retained by the county officials, it would be possible to get *copies* centralized in the state health departments. In the absence of centralized records of marriages and divorces in each state vital statistics office, investigators seeking information about these occurrences, as well as individuals seeking copies of such records for legal and personal uses, are confronted with a maze of different record systems and with the sometimes hopeless task of searching among hundreds of county and other local offices.

The same situation once existed with respect to mortality and natality records and statistics in the United States. No national statistics were available, and many states had no central records of births and deaths. For several decades, coöperative state-federal efforts were devoted to building national registration areas for births and for deaths—admitting each state to these areas as it established adequate provisions for centralized records and attained a required degree of completeness in registration. The American Public Health Association played an important role in that development, including activities to support the passage by the United States Congress in 1903 of a Joint Resolution urging the states to coöperate with the Census Office (in which vital statistics work was then located).

Many individuals and organizations are now recognizing the need and requesting action to accomplish not only a program of detailed statistics of marriage and divorce but also state centralization of records on which such a program depends. The Association of State and Territorial Health Officers endorsed, in December, 1946, the central registration of marriage records and

certificates or official abstracts of divorce records in state health departments. The Council on Vital Records and Vital Statistics has shown an active interest in this area, and has a Committee on Marriage and Divorce working on various related problems. The American Association of Registration Executives directed its officers, in March, 1948, to seek a Joint Resolution by Congress urging state coöperation on marriage and divorce registration along the lines of the 1903 Joint Resolution on birth and death registration. The American Sociological Society, the Population Association of America, the Technical Advisory Committee on Population for the Seventeenth Decennial Census, are among the groups which have recently called for more adequate marriage and divorce statistics.

Such a marriage and divorce program would not be entirely new. Dr. Bernard M. Cohen, who was in charge of our marriage and divorce statistics around 1940, presented plans for a program of detailed marriage and divorce statistics, based on state centralization of records and on national registration areas, at the 1940 meeting of this Section, and his paper was later printed in the *Journal* of this Association.[2] At that time, an editorial in the *Journal* endorsed the idea, and stated:

> Marriage and divorce, therefore, in terms of potential births and in relation to fertility and fecundity, have definite biologic implications, and records of them constitute an important part of the broad subject of vital statistics. That such records should be available and utilizable, and utilized, as are birth and death certificates, is a goal properly to be sought in the interest of the public health.[3]

The proposed program was started, but these first steps were halted soon after the outbreak of World War II. Now, the National Office of Vital Statistics again plans to proceed with the development of registration areas, recommended procedures, minimum items, standard certificates, recommended tabulations by state offices, and other necessary steps. None of this can be done without the active, continuing assistance and advice of health interests and of everyone concerned. We are unable to predict when funds may become available for a full-scale program, but we propose to accomplish as much as possible in this development, in advance of a full-scale program.

It is encouraging that an increasing number of states have provided by law for integrating their marriage and divorce records and statistics with their other vital records and vital statistics in the state health departments. About three-fourths of the states now have central records for marriage, and about one-half for divorce. Not all of these have full-fledged systems from which the data we would need could be furnished. All of us are aware of the importance of continued efforts to the end that these systems be improved in states where they exist already, and that they be introduced in the remaining states which have no central marriage and divorce records. Again, it is encouraging that many of the vital statistics offices in state health departments, not having centralized records, have evidenced real interest in the problem, and have furnished invaluable assistance by obtaining state totals on numbers of occurrences.

Going beyond the immediate goals for developing the frameworks of state records and of state and national statistics, we may foresee a day when health workers and others will have adequate marriage and divorce data, as an essential segment of broadening human knowledge about family and community health and welfare. Such a broad picture is incomplete without marriage and divorce data; and, in turn, the marriage and divorce data themselves will become more meaningful as they are related to the whole pattern of health and well-

being of the family in the community, the state, and the nation.

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Second Annual Psychiatric Aide Award

Roland J. Brand, attendant at the Milwaukee County Asylum, Wisconsin, recently received the second annual "Psychiatric Aide of the Year" Award for 1948. The award, given for his achievement in removing restraints from 32 male patients on the most disturbed ward at the Milwaukee institution, overnight, and in completely banishing the continued practice of restraints on his ward and thereby setting an example for the rest of his fellow employees, includes a cash prize of $500 and a citation.

In announcing the award, which is given by the National Mental Health Foundation, and in 1948 with the coöperation of Catherwood-Kirkbride Fund for Research in Psychiatry, Philadelphia, the foundation's president, Richard Hunter, told how Mr. Brand had removed all restraints from patients in his ward after visits to an Illinois State Hospital where restraints have been prohibited by law for many years.

The foundation created the annual award as "a valuable instrument in gaining public interest for its program of bettering the situation of the aide through adequate training, improved working conditions, and public appreciation for his role in the care of the mentally ill."

Five other candidate aides for the 1948 award received $50 awards and honorable mention for their exemplary performances in the care of the mentally ill. They are:

Elizabeth Guy, St. Elizabeths Hospital, Washington, D. C.

Zella Bauer, Chicago State Hospital, Chicago, Ill.

Joe Collins Hisle, Jr., Veterans Administration Hospital, Lexington, Ky.

John Robert Hull, Ypsilanti State Hospital, Ypsilanti, Mich.

Thomas R. Cobb, Jr., Veterans Administration Hospital, Roanoke, Va.

Plans for the 1950 Population Census*

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SEVENTEEN months from today will be Easter of 1950. By that date one third to one-half of the population should have been enumerated, but even under the most favorable conditions, it is unlikely that many of the staff associated with this gigantic undertaking will fully enjoy the peaceful tradition of the Easter season.

In preparation for the forthcoming Census of Population, the staff of the Census Bureau has been actively engaged in several types of preparatory work for the past year and a half. These have taken three major forms: (1) discussions of, and experimentation with, schedule content; (2) procuring and preparing the necessary maps, and making improvements in geographic classification, and (3) testing certain alternative field and office procedures. I shall refer briefly to some of the conflicts which we face in planning for the 1950 Census of Population. For example, in this census as in preceding ones, there are strong pressures being exerted in behalf of many new questions, but there is much evidence to indicate that we ought to reduce the size of the questionnaire rather than increase it. The costs of census operations have risen so sharply since 1940 that we must adopt all possible means of economy. Nevertheless we recognize urgent needs for a number of changes that would considerably improve the quality of the 1950 Census but would increase costs even above the levels resulting from price changes. We need to defend these improvements in quality at a time when the pressure upon governmental budgets is particularly great. I wish there were time to tell you about some of these improvements, for I believe the users of our figures have a real stake in any program that will improve the coverage and quality of census statistics.

I shall, however, confine myself to a brief discussion of several subjects which pertain more closely to the interests of this group. These include a brief consideration of the proposed schedule content of the 1950 Census of Population; discussion of the proposed new urban-rural classification of the population; the tentative plans for matching Population Census returns and birth records; and the program for the Hemisphere Census. It should be borne in mind, of course, that most of our plans are subject to revision in the light of the appropriations finally made available by the Congress some time next spring or summer.

SCHEDULE CONTENT

During the past year we have held a series of meetings of advisory committees in various subject fields in order to obtain recommendations regarding proposed questions and procedures for the next census. You will be glad to know that two staff members of the U. S. Public Health Service have served on the advisory committee concerned with demographic problems. We have stressed to the committees our belief

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that every effort should be made to limit the census to those questions most urgently needed. We have stressed this both because of the high costs of census taking and because of the fact that the burden on the enumerators should be held down as much as possible. Unfortunately, many of those suggesting additional work to be done often have a very inadequate idea of the difficulties attached to the job. The problem of recruiting more than 150,000 inexperienced enumerators, of acquainting them with dozens of forms, instructions, and schedules, of providing them with the maps and detailed boundary descriptions necessary to canvass an area of two billion acres, and of insuring that they visit over 40 million separate households would be very difficult, even if the organization for this purpose were in continuous operation. However, most of the large organization responsible for this job must be newly created and within a comparatively brief time must learn about the administrative and technical aspects of the undertaking. It is obvious that the addition of more and more questions, especially those of a complex nature, adds greatly to the task of training this newly recruited organization and exposes the Census Bureau to the very real danger that the training will be spread over so many complicated concepts that the enumerators and supervisors are not well equipped to meet their responsibilities. Furthermore, as the questionnaires are increased in length, there is always the danger that the respondents will become fatigued and annoyed, so that the quality of the information collected will be impaired.

The members of the several advisory committees have concurred with us in the belief that it is necessary to hold down the size of the census schedule and have supported a 1950 program that we hope will prove a little easier to carry out than the 1940 job. There are, of course, a number of changes of questions within this basic framework but none that would be of immediate concern to many of this group.

I should like to refer briefly to a question or series of questions on the physically handicapped which has been proposed for the 1950 Census under the terms of a bill introduced before the 80th Congress. We have indicated our opposition to such legislation and hope that many of you will concur in our belief as to its undesirability. We have much experience from earlier censuses to show how erratic is the enumeration of handicapped groups of the population. This is to be expected because of the reluctance of many people to report any situation which would reflect upon the family and because of the difficulty of training 150,000 enumerators to apply consistent rules to such a complex subject as physical handicaps.

We do not, however, take a purely negative view about counting handicapped individuals. We believe that there are undoubtedly important purposes to be served by such data and stand ready to carry out experimental work to measure the incidence of physical handicaps through sample surveys. Our Current Population Survey provides a means by which work of this kind can be carried out on the basis of a sample of proved reliability and in fact some limited work of this kind is already under way. In the long run it seems probable that the need for this kind of information, as well as for many other types, can be met in part through sample surveys which will provide information on the population and its characteristics at dates between the census enumerations.

In this connection it is interesting to note that the publishers of agricultural journals have recently expressed strong support for an annual sample survey of agriculture to give information on production and inventories

between the quinquennial Censuses of Agriculture.

URBAN-RURAL CLASSIFICATION

For many years the classification of the population into its urban and rural components has been relatively unsatisfactory. In general, we have classified as "urban" that part of the population residing in incorporated places of 2,500 and over, and have applied certain special rules mainly in New England where many sizable urban communities are not incorporated. On the basis of our procedures, such urban places as Bethesda and Silver Spring on the outskirts of Washington have been classified as rural-nonfarm, and, on the other hand, the primarily rural population outside of the unincorporated urban places in many New England townships has been classified as urban because of the procedure of treating the township as a unit. It is conceded that such misclassification has considerably reduced the value of the urban-rural subdivisions of our tabulations since it has blurred the differences between these major segments of the population.

Partly because of the availability of new map materials, notably aerial photographs, we have been able to attack more effectively than hitherto the problems of improving the classification of the urban-rural population. In the first place we have proceeded to set boundaries for all unincorporated places of 800 or more. In 1950, therefore, we can classify as urban all places of 2,500 or over regardless of the fact of incorporation. Likewise through office and field work we shall be able to classify as urban the people in the built-up areas around large cities of 50,000 and over. We believe that these steps will provide us with a population classification that will be much more useful to many types of consumers of census statistics.

We recognize, however, that there are certain problems attached to the use of the new figures for the computation of the various vital rates with which the members of this group are greatly concerned. Consequently, in 1950 we plan to present certain tabulations both on the basis of the old urban-rural classification and the new improved classification. We hope that the National Office of Vital Statistics will encourage states to adopt procedures for the processing of birth and death certificates and other vital records so that these important demographic statistics may in time be properly allocated through addresses to the new types of areas set up for census purposes. To the extent that this large job can be carried out during the next decade, we may look forward to much more meaningful vital rates for the urban and rural segments of states and counties by 1960.

COMPARISON OF CENSUS RETURNS AND BIRTH REGISTRATIONS

Many of you are familiar with the 1940 program for matching of infant cards collected by census enumerators with birth records from the state registrars. We believe that the decennial census offers a unique opportunity for evaluating the validity of two sets of basic records and for improving the usefulness of both. We shall be able to obtain from this matching of records a measure of under-registration in the several states as well as evidence on the factors that contribute to the under-reporting of babies in the census.

We are currently working with the staff of the National Office of Vital Statistics in developing techniques for this major statistical undertaking which will not run counter to the legally imposed responsibilities of the several agencies which must participate. The problem in 1950 is somewhat complicated by the fact that in 1950, unlike 1940, the basic records which must be brought together will be in the hands of two different agencies. Under the pro-

visions of law, data collected by the Census Bureau can be used for statistical purposes only, and must not be employed for taxation, regulation, and other administrative ends. However, we hope to be able to develop procedures which will enable us to realize the very real statistical gains potentially available from this matching operation.

CENSUS OF THE AMERICAS

Plans being actively sponsored by the Inter American Statistical Institute call for taking of censuses throughout the Western Hemisphere in the years 1949 to 1951. The value of such an undertaking is particularly great for public health authorities since it will make possible the development of much more nearly comparable vital rates throughout the Hemisphere. In the development of this program there has been reassuring evidence of the ability of nations with many diverse interests and problems to get together on minimum standards to which all would adhere. At this very time over 50 representatives of 16 countries are meeting in Mexico City for a training program in connection with the 1950 Hemisphere Census and the World Census of Agriculture being sponsored by the Food and Agriculture Organization of the United Nations. During the past year we have trained more than 60 representatives of the American nations in various types of census procedures and have provided special assistance to a considerable number of countries throughout the Western Hemisphere. Assistance has also been given to about 20 representatives from a wide range of countries outside the Western Hemisphere.

We welcome these opportunities for better understanding and hope that broader opportunities for this kind of work may be developed under legislative approval for setting up on a world-wide basis programs which have hitherto been restricted to this hemisphere.

The New York State Home Accident Prevention Program*

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THE New York State Department of Health entered the home accident field in 1942 with the establishment of a safety program in its Office of Public Health Education. This program was primarily educational and much has been accomplished in stimulating many official and voluntary state agencies to partcipate in home and farm safety programs within the province of their respective responsibilities. Advisory subcommittees were organized for the purpose of bringing to the department expert advice from physicians, architects, farm leaders, home economists, and safety engineers. These subcommittees have supplied the department with technical information regarding safety within their own fields, and have thus assisted in the publication of useful educational material both for the general public and for special groups.

Two recent developments in New York State have given rise to a considerable broadening of the home accident program. First, the activities of the State Department of Health were reviewed by the Commissioner and his staff and it became quite apparent that a well directed approach to the home accident problem calls for the utilization of several public health tools in addition to education. There is a definite need for epidemiologic studies to determine the basic environmental and personal factors peculiar to accidents in any given area, for case finding of accident-prone individuals, for provision of clinical facilities for correction of mental and physical disorders related to proneness, and for research. To implement these additional activities, the home accident program was reorganized as a section of the Division of Medical Services, which is responsible for the planning and operation of special public health programs of this type. From this vantage point, the Home Accident Section works closely with the Bureau of Maternal and Child Health in those phases of its work relating to child safety, and participates in the planning of health programs for the later years of life during which accidents are such a frequent cause of disability and death. As do all special service programs, it receives the cooperation of the Offices of Public Health Education and Vital Statistics in their respective fields, and obtains the assistance of the Division of Local Health Services, with its Bureaus of Public Health Nursing and Sanitary Engineering, in bringing the program into the field through the district health offices and the full-time city and county health departments.

The second development was the establishment by the legislature of a State Division of Safety responsible directly to the Governor. The purpose of this division is to " coördinate the safety activities of the various state departments, and to coöperate with local governments, civic and voluntary organizations, and other interested agencies in a

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state-wide coöperative effort to provide the fullest possible protection for lives and property within the State of New York." The Division of Safety provides the means whereby the interests of each of several state departments engaged in accident prevention may be coördinated to mutual advantage. For example, the problem of home safety is of utmost importance to industry, as injured workers are kept away from their jobs regardless of where the accident occurs. Reciprocally, industrial plants provide an excellent means of reaching large numbers of individuals with educational material on home safety. The Division of Safety offers the meeting place whereby the respective programs of the Deparment of Health and the Department of Labor may be integrated.

In addition, the Division of Safety is taking on the responsibility for the organization of safety committees at the local level, such committees to have subdivisions for home accident prevention as well as for the other major categories of accident control. Thus, for a community home safety program, the Division of Safety tackles the problem of bringing together all local agencies which can develop active participation, while the Department of Health is responsible for providing the necessary educational materials and methods, for establishing patterns for epidemiologic study and case finding, and for encouraging the local health officer and his staff to participate in the local programs and to show leadership.

This is a very important step forward because, while safety councils have been established in most large cities and in several counties, the home accident problem has too often been sidetracked because of the greater emphasis placed upon industrial and highway safety. Both official and voluntary agencies have been responsible for this situation. Despite the participation of the State Health Department in a home safety program since 1942, the number of community programs with active participation by local health departments has been very small. This dearth of official support was clearly revealed by the 1947 American Public Health Association *Evaluation Schedules* for accident control recently filled out by cities and counties in New York State.

Among many voluntary agencies, there is a considerable lapse between the acceptance of a program by the policy making group at the federal or state level, and the adoption and execution of that program by the local chapters. The planning must, therefore, be both horizontal and vertical. On the horizontal plane the State Department of Health and the State Division of Safety will continue to encourage other state official and voluntary agencies to accept home safety as a suitable activity for their organizations. Equally, or even more important, is their task on the vertical plane to assist the local health departments and safety committees in enlisting the coöperation of the local units of these other agencies in the inauguration of a successful program.

HEALTH DEPARTMENT ACTIVITIES IN HOME ACCIDENT PREVENTION PROGRAM

The prime objective of the Home Accident Prevention Program is the prevention of sickness, disability, and death attributable to accidents occurring in the home and its immediate environment. To achieve this objective, the following functions must be carried out:

1. Education regarding home accident control directed at the public, the medical profession, other health workers, and voluntary agency representatives.
2. Epidemiologic investigation of home accidents.
3. Case finding and provision of clinical facilities for the treatment of persons found to be unusually susceptible to accidents.

4. Research regarding causes of accidents and methods of prevention.
5. Consultation and coöperative planning with other agencies concerned with safety.

A home safety program requires intimate contact with the home, and the above functions must be the responsibility of the local health department although other agencies represented on the community safety committee can and should render active assistance. It is the responsibility of the State Department of Health to establish the patterns for carrying out these functions, to supply the necessary materials to help the local efforts, such as exhibits, brochures, and films, to assist in the training of personnel, and to set up demonstrations both for the purpose of showing how the job can best be done, and for experimenting with new methods of approach. The following is an outline of how these familiar public health tools may be applied to the home accident program:

1. EDUCATION

In the home accident problem public health education must apply the same general techniques which have been used in other fields in which personal habits play such an important role. An educational program must be prepared both for the public and for the special professional or service groups which can participate in getting the message across.

a. Public Education—The educational approach is designed to familiarize people with the accident hazards with which they may come in contact, to demonstrate to them methods of safely carrying out routine activities, and to motivate them to apply principles of safety in every walk of life. A well informed and highly motivated person, free from serious physical defects, is resistant to accidents.

Experts trained in mass educational procedures tell us that people do things for their own good or for the good of their community only when they are requested to do so by someone quite close to them. Therefore, it is necessary to reach right into the home to carry out a satisfactory educational program which may reduce accident morbidity and mortality. Talking to large groups, organizing big committees, arranging lots of meetings comprise so much window dressing unless these activities are recognized as a means and not an end, and they are utilized only to stimulate the development of more basic plans. High power publicity through the radio, the press, the movies, and posters about the town, is of great value in informing people that the problems exist and in preparing them to act favorably if and when the matter is brought to their personal attention by someone close to them. However, if publicity and meetings are the major achievements of the program, people adopt the attitude that the problems which they hear and read about, while true, apply to someone else and not to themselves.

Families can be stimulated to promote safety principles and methods within their homes by one of two ways—either by monitoring by individual members of the family, or by having these principles and methods pointed out to them by someone with whom they are familiar. For the first approach, children can be reached through the schools, the 4-H Clubs, and the scout organizations. Parents can be reached through the P.T.A.'s, women's clubs, men's service clubs, church organizations, granges, and the like. These then are the specific groups which the local safety committees must bring into the program. As a corollary, only groups which can play a specific part in getting safety information into the home should be asked to participate. A speaker should be assigned to such an organization only if a definite plan for carrying out a safety program has been arranged or is to be proposed. A talk on safety should outline the steps which the members of the organization can take, such as (1) the appointment of a safety committee, (2) the distribution of check lists to each of the members, (3) an analysis of the completed check lists by the safety committee to determine the number of hazards existing in the homes of the members, (4) plans for the elimination of such hazards. A really effective program will include (5) a repeat of the check list survey three or six months later for the purpose of determining how many of the hazards have actually been corrected. In this way every member of every coöperating agency plays an active role in the program, and the principles of safety are introduced into a high percentage of homes in the community.

The second approach to the home is through persons who have frequent and intimate contact with it. This group includes the practising physician, the public health nurse, the social

worker and, occasionally, the sanitary engineer. These individuals are trained observers and investigators, and can play a helpful part in pointing out accident hazards to the members of the family, distributing informational material and assisting with check lists. Also, the servicemen of the utility companies and the delivery men of bakeries and dairies are well known to the family members and are in a good position to make suggestions regarding the elimination of accident hazards and to leave educational brochures or posters. Indeed, it is to the advantage if these employees and their companies to have them take part in such a program inasmuch as it is they who may readily suffer the consequences of broken steps, of objects being left on the outside or cellar stairways, or of inadequate lighting with lots of junk in the basement in the vicinity of the gas and electric meters.

b. Education of Participants — It is the responsibility of the health department to provide inservice training for its local health officers, nurses, and engineers in the principles of accident prevention so that they will be in a better position to carry safety information into the homes which they visit, assist in the elimination of hazards, and to work with local groups in a community safety program. Another important function is the training of members of voluntary agencies so that they may serve as speakers and group leaders in the safety campaign. Voluntary agencies frequently employ persons already trained in safety, but most often these do not meet the needs. In New York State the Health Department has conducted institutes for designated representatives of the participating agencies, and at the present time there are at least 24 such workers conducting safety programs within their groups.

Practising physicians must be kept informed as to the problems involved in home safety and the importance of their role in stimulating their patients to live in a safe manner. The Medical Society of the State of New York has appointed a subcommittee of its Council Committee on Public Health and Education to work with the State Department of Health in this particular field. This is the same pattern of coöperation existing for practically all of our public health programs.

If the utility and other corporations having contact with the home can be persuaded to have their representatives take part in the program, and this alone requires a considerable educational activity to achieve, it is the responsibility of the health department or the local safety council with which it coöperates to provide the necessary training of these men.

One special group which can play a very important part in a home safety program is the Association of Architects. Certainly, structural defects in the home account for a significant portion of home accidents. In New York State we have had the benefit of the services of a Subcommittee on Housing which is composed essentially of architects. This subcommittee has prepared a special brochure designed to bring architects up-to-date regarding techniques whereby safety features may be included in the planning of a house. At the present time, this subcommittee is coöperating with the Adult Education Division of the Syracuse City Department of Education in conducting a course in home remodeling open to the public without charge. Lectures and demonstrations are held one evening each week for six weeks. People usually remodel their homes from the viewpoint of beautifying them or making them more practicable, and it is the purpose of this subcommittee to add a third reason, namely, the elimination of any accident-predisposing features. The average attendance at this course is about 100 and the material prepared for it will be available for similar courses elsewhere.

2. EPIDEMIOLOGY

For a direct approach to the home accident problem in any community, it is necessary to have detailed information regarding the epidemiologic factors involved in the causation of accidents. Several worthy studies have been conducted and have brought out pertinent information regarding the environmental and personal items related to the accident problem. However, it is apparent that these factors may vary in different communites inasmuch as they are related to housing conditions, economic levels, literacy, facilities for medical care, liquor and drug control, age distribution, and very important the previous level of accident prevention activites in the area.

Here is a field in which the science of epidemiology first employed by health departments for acute communicable diseases and more recently for the chronic diseases, may be utilized. During the current year the State Depart-

ment of Health is organizing a demonstration program of this type in one region of the state. With the coöperation of the hospitals and physicians, an investigation will be made of each person hospitalized because of a home accident or possibly because of related accidents as well. A nurse will interview the patient or members of his family for the purpose of determining the nature of the accident and the underlying factors, and to get a history of previous accidents suffered by the patient. She will then visit the site of the accident to determine the physical features involved. The information will be made available to the attending physician who will be asked to determine the presence and correctibility of any mental or physical disorder leading toward accident-proneness. The important questions to be answered are: how could this accident have been prevented, and how may a repetition be avoided? As the study progresses, non-hospitalized cases may be included upon referral by the private physicans, or upon discovery by public health nurses or social workers during the course of visits for other purposes. At the present time the nurses in one section of the demonstration area are already making inquiries regarding all accidents occurring during the last 3 years among the members of the families they visit for any purpose whatsoever.

The information obtained from the study will serve several purposes. First, it will provide information regarding the general environmental factors responsible for accidents in this community and thus allow the educational program to be more specifically directed at the removal of such hazards. Second, it will determine the incidence of accidents attributable to special problems requiring outside assistance for their correction. The occurrence of many accidents due to structural defects may indicate changes in building regulations. If a large number of accidents have been found to be caused by a new type of washing machine or stove, the matter can be referred to the manufacturer with a request for an improvement in the structure of the item, or for a more satisfactory set of directions regarding its use. Third, the investigation will lead to the discovery and treatment of accident-prone persons, and will provide information regarding the relative importance of proneness in the home accident problem. Finally, continuation of the study for several years will lead to an evaluation of the effectiveness of the home safety activities of the communities through an analysis of the number and types of accidents admitted to hospitals or seen by physicians each year.

3. CASE FINDING AND TREATMENT

Case finding in the accident field refers, of course, to the discovery of persons who, because of mental or physical disorders, have an incidence of accidents beyond that suffered by the average person regardless of environmental conditions. The practising physician must be ready to recognize accident-proneness and predisposition and to institute procedures for the discovery of the cause and the elimination of the factors involved. The epidemiologic study referred to above is expected to demonstrate how careful investigation will lead to the discovery of accident-prone individuals. Public health nurses, social workers and teachers, if well informed regarding the nature of accident-proneness, are in an excellent position to detect individuals having an extraordinary number of accidents, and refer them for proper medical attention.

Children found to be accident-prone may be referred to child guidance clinics operated in New York by the Department of Mental Hygiene, where a complete psychiatric and psychologic investigation can be made to determine

the causative factors. This referral will, of course, be made after the child has had a complete physical examination to determine whether disturbances of vision, hearing, or neuromuscular coördination may have played an essential role. In the larger medical centers, an accident clinic may be warranted, and some institutions are experimenting with this type of procedure. Actually the accident clinic serves as a clearing center from which the patient is referred to various specialists in an effort to determine the factors responsible for his proneness. The establishment of such clinics upon an experimental basis is an excellent field for coöperation between the medical profession and the health department.

4. RESEARCH

The accident prevention field is one of the newer public health activities and will require much research before the ultimate in achievement has been reached. Research must include the exploration of improved methods of administering the safety program, and determination of the relative roles to be played by health department personnel, voluntary agency representatives, industrial concerns, and safety councils. The program looks for improved methods of encouraging the public to participate in the safety program and of making safe methods attracttve to the homemaker. It calls for exploration of procedures for obtaining additional data regarding the basic nature of the accident problem, discovering the accident-prone individual and rehabilitating him. Above all, there must be sought improved methods of evaluating our results in this field so that we may be certain that we are approaching the objective of reducing morbidity and mortality from home accidents.

5. CONSULTATION AND COÖPERATION WITH OTHER AGENCIES

While the health department should accept the lead in setting up the home accident prevention program at the state and local levels, it must encourage the active participation of other official and voluntary groups in the planning of the activities, the provision of educational materials, the training of personnel, and the actual extension of the program into the homes.

The local departments will find active coöperators among parent-teacher associations, men's service clubs, church groups, 4-H Clubs, Home and Farm Bureau groups, granges, Red Cross Chapters, boards of education, Boy and Girl Scouts, county medical societies, nursing associations, trade unions and many others. These organizations have much to offer in the way of educational outlets, home contacts, and provision of active workers. However, it is necessary to stimulate their interest, motivate them to play an active part in the program, train their workers, and make them feel that they are an important cog in the overall machine through active representation in the local council.

It is not at all times possible, nor even desirable to confine local programs to home safety. For example, child safety has great emotional appeal and was the subject of a national campaign during September. Children are all too frequently the sufferers from home accidents, but they also are involved in accidents outside the home. Thus, a child safety campaign requires coöperation by the health department with the many agencies concerned with other fields of safety.

All accidents, whether they occur on the highways, in places of public assembly, or in industrial plants, are of public health concern, and the health officer should serve as a consultant to all organizations interested in accident prevention.

SUMMARY

Home accidents comprise a significant public health problem and fall within

the domain of the health department. The health officer and his staff of public health nurses and sanitary engineers have frequent contact with the members of the home, and work closely with physicians, school authorities, and representatives of voluntary agencies, all of whom can render active assistance in a home safety program. The incidence of morbidity and mortality attributable to home accidents can be reduced by the application of the techniques of public health education, epidemiology, case finding, rehabilitation service, and research, all of which have been so well utilized by health departments in other public health fields. Home accident control must be incorporated as a regular function of the health department, closely integrated with the activities of many of the regularly operating bureaus, if further substantial reduction in disability and death rates is to be achieved.

Industrial Hygiene Advisory Committee

A national advisory committee to the Division of Industrial Hygiene, Public Health Service, on all phases of industrial hygiene has been appointed and is holding its first meeting late in September. The members will bring together the viewpoints of management, labor, the health professions, and state health and labor departments in broad policy guidance of the division, made necessary by the new importance of air pollution in industrial towns and cities and the increasing interest of labor unions in health and welfare plans.

Members of the committee are:

Vincent P. Ahearn, National Sand and Gravel Association

Nelson H. Cruikshank, American Federation of Labor

Andrew Fletcher, President, St. Joseph Lead Company

Theodore F. Hatch, Research Director of the Industrial Hygiene Foundation

R. H. Hutcheson, M.D., Tennessee State Commissioner of Public Health

Margaret Lucal, American Association of Industrial Nurses

Leo Price, M.D., Director, Union Health Center of the International Ladies Garment Workers Union

Harry Read, Congress of Industrial Organizations

Harold A. Vonachen, Medical Director, Caterpillar Tractor Company

Health Demonstrations in Two Minneapolis Schools*

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IN the spring of 1947 we launched something quite new in Minneapolis in the way of health education—an overall health education demonstration for two selected schools, one on the elementary, and one on the secondary or junior high level.

In inaugurating these programs we had certain definite purposes in mind:

First of all—and this was our primary concern at both levels—we wanted to find out what the two schools really needed in health education, including health services, equipment, etc; healthful school living, both the physical and mental aspects; and what we could do to meet their needs.

We wanted to show curriculum directions in health education—what to teach and ways to teach health so that the development of basic understandings, skills, and attitudes in health could become a living part of each pupil's experience.

We wanted to develop techniques and procedures for getting needed health information about the school and community. What kinds of tests, what kinds of surveys and observation techniques can be used to supply these communities with data about the health needs of our pupils.

We wanted to demonstrate group action—people working in harmony for the common good of their school and community.

We wanted to introduce those health procedures recommended by educators, doctors, and public health authorities as basic to a successful school and community health education program.

We wanted to show the steps another school might follow in inaugurating a health program of its own.

We wanted to introduce a sound program of physical education and recreation in these schools.

The money to support the idea of the demonstration came from the Hennepin County Tuberculosis Association whose Christmas Seal money is spent, to a large extent, in health education and research. In the fall of 1946, in response to a request from Willard Goslin, then Superintendent of Minneapolis Schools, they offered a $10,000 grant to the Minneapolis schools if they would set up and staff some type of a health education program for a two year period. Five thousand dollars was to come the first year, the second $5,000 if the first year's work was satisfactory. The responsibility for setting up the program became the responsibility of the Minneapolis Board of Education.

The project was under the immediate supervision of Prudence Cutright, Assistant Superintendent in charge of Elementary Education and in charge of health

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education in the schools, and the overall guidance of curriculum activities on the junior high school level became the responsibility of Dr. Robert Gilchrist, Assistant Superintendent in charge of Secondary Education.

Dr. Delbert Oberteuffer, Professor of Health and Physical Education at Ohio State University, was called in as general health consultant. Shortly after, I was excused from some of my university teaching to act as project director.

It was emphasized that we were not to become an experimental center, but rather a demonstration laboratory in which recommended procedures were introduced, developed, and evaluated. We planned a pilot study in health education for the Minneapolis schools. We took our schools and our health facilities just as we found them and simply extended their usefulness.

In the latter part of January, 1947, we had three days of preliminary meetings on planning and organizing. To give our work a firm foundation in the life and interests of the community, this early planning committee was chosen on a city-wide basis. We had representatives, not only from the school system, but from the Minneapolis Health Department, the University of Minnesota, the Hennepin County Tuberculosis Association, the Minneapolis Council of Parents and Teachers, the Minneapolis Council of Social Agencies, and other interested groups. With some additional personnel this group became our advisory committee to the project, which will function throughout the two year demonstration. One of the activities of this committee was the assistance with, and approval of, a list of elements which should be found in any successful health education program. Also, this committee has been looked upon as a guiding group for policy development in the field of school health education.

In February we sent out letters to all of our elementary and junior high schools, telling them about the proposed demonstrations and asking those who wished to become health centers to make a formal request by letter to the superintendent in charge of their particular level. In response we had a number of applications from the elementary and junior high schools. We chose our demonstration schools very carefully on the basis of 38 criteria. These included such diverse factors as location of the school, condition of the school building, availability of lunch room, health conditions as shown by city statistics, percentage of juvenile delinquency, interest of the staff, availability of community health services, and desire on the part of the school to be a demonstration center. At the end of a long screening process we selected Whittier and Franklin schools from our list of candidates. Interest of the staff was a major factor in the selection of these schools.

Whittier School, located on the south side of town, is a typical Minneapolis school. It was old and at that time in need of repairs, but it had space available for additional health activities and an alert and interested staff. There was an enrollment of 740 pupils and a staff of 21 classroom teachers. It is in an old section of town with old houses divided into smaller units and a large percentage of renters. Many of the families are from the average and lower income brackets but some are well-to-do. Whittier School is located within an area of high juvenile delinquency.

Franklin Junior High is on the other side of town, in north Minneapolis, in an old and highly industrialized section. Because many of the parents are foreign born and many of the mothers work in factories, we found it more difficult to make contact with the families. Here, too, we found a high rate of delinquency, both as to adjudicated and pick-up cases, and the tuberculosis death rate is higher than in any other area in town. Seventy-five per cent of the

pupils showed evidence of dental caries.

In both schools the program which was finally set up evolved directly out of the needs of that school. There was no set plan, program, or direction brought into the school by the director or anyone else concerned. It became the job of the particular school to develop its own program. However, opportunity for consultant services was extended to these schools by members of the advisory committee, the central office staff, and other interested groups.

All through the spring of 1947 there were preliminary meetings between staff, principals, director, parents, students, and consultants of the central office staff. They talked over health needs—needs to be met immediately and those that could wait awhile. At the same time teachers were reviewing studies and reports which contained objectives, content, findings, and recommendations for sound programs of school health education. Consultants and other specialists in this field were invited to the school to discuss program needs in their respective areas. This study of what should be included in a present-day school health program, paralleling the discovery of what a particular school was like in respect to these characteristics, made it possible to develop a meaningful list of needs as a basis for an immediate and long-range attack on setting up a total health program. This purposeful delay until the fall, in selecting a complete and polished list of general and specific objectives for the demonstration, gave us the opportunity in each school to get underway faster and to avoid, as much as possible, that terrible calamity of some educational projects—that of becoming bogged down with a philosophical attack on the development of a beautiful set of objectives which have finally become an end in themselves. However, by the fall of 1947 the objectives committee in each school presented to the staff and health council a list of general objectives for the demonstration. These were developed as a result of the spring study of needs and recommendations of studies in this field. Under each objective was a list of elements which would be in existence in the school, if and when the particular objectives were realized. From this list of elements and the various committee recommendations as studied by a small committee, a list of specific objectives was developed for the year. This list of specific objectives, as in the case of the general objectives, was selected and approved by both the staff and health council of each school. The year's work, then, in these schools was directed toward the realization of the specific objectives. This plan helped to keep us on the track and to make orderly progress toward our immediate goals. In a field as broad as this it is easy to lose one's way, to duplicate on some areas, or to omit others entirely. Therefore, it was important that each need or problem be studied in terms of the overall picture of the project.

The committee organization appeared to us to be the most efficient technique to provide the opportunity for participation of all concerned. Although a few teachers were pegged for certain jobs, such as the physical education teacher on the physical education committee, in general each one selected the committee of his or her choice. I should like to name the nine committees as they were set up in each of our schools, for they indicate the wide range of activities. There were committees on Objectives, on Health Instruction, on Individual Health Guidance, Mental Health, Physical Environment, Public Relations, Resources and Materials, Recreation and Physical Education, and Staff Needs and In-service Education. The last committee named was often referred to as a safety valve committee because the members kept their fingers on the pulse of the project as a whole. Were we moving too

fast? Too slow? Was everyone clear about plans? Were we acomplishing what we set out to do? What changes of action were needed? These were the types of questions we were forced to answer because every effort was directed toward the use of democratic procedures in the development of this program.

During the summer months additional meetings were held between director, principals, and advisory committee. Several of the teachers took special training at a workshop sponsored by the University of Minnesota and the Minneapolis Board of Education, and others attended workshops and schools in other parts of the country. Fall schedules were arranged so that each school was to have the doctor present one-half day per week, a social worker an additional one-half day a week, and a nurse an additional half day, in order to get the project under way. When school opened in the fall, all effort was directed toward work on our objectives for the year.

First of all, at Whittier and Franklin, we organized a health council, composed of teachers, parents, and student representatives. This was carried out on the recommendation for committee activities. It was felt that a need for a health council must exist. If a narrow concept of health is held by a school, a health council is like a sore thumb—always in the way—because the very existence of a health council should indicate a broad concept of health and a need for group action. In addition, we had a health committee, composed of boys and girls elected by their various home-room groups. At Franklin, we had student home-room representatives, who acted as leaders of their home-room group, and also helped us in our all important surveys. At Whittier, a pupil was elected from each classroom to serve on a school-wide health committee.

To relate and to coördinate the work of the small committees—the health council, school personnel, and parent organization—a steering or executive committee was formed in each school. On this committee we had the key individuals from the various areas, so that the entire project would be represented. For example, the health chairman of the P.T.A., the school doctor, principal, school social worker, the nurse, health coördinator, and I made up the regular membership of this committee. Others were called in as needs arose. At Franklin School the health coördinator is a teacher who has been released from two hours of teaching to coördinate the school health program. At Whittier School the principal is acting in the role of health coördinator for the present.

Our projects have been in operation something over one year. It is impossible in this report to make an adequate summary of the things that were accomplished by our two thriving centers. A few highlights, perhaps, will show you some of the things that were covered.

At Whittier, because it was an elementary school, many of the health activities centered on the teacher and in the classroom. Screening tests for vision were given, and all weighing and measuring was done by the teacher and made a subject of classroom discussion. The health examination, which was given to all fourth graders at Whittier, as well as to new students and referral cases, was made the subject for a teaching unit. Our friendly school doctor gave a demonstration of a health examination in each classroom, explained everything that he did, and answered any questions the children asked. At Whittier, this demonstration became the initiating activity of a unit on the health examination, while one of the culminating activities consisted of the pupil (1) making an appointment for a health examination, (2) completing, in so far as able, a health history, (3) inviting his parents to the examination, and (4) experiencing the examination and a plan

for securing needed corrections. In all of these experiences the pupils were guided by the nurse, teacher, and parent; yet, we kept in mind that the securing of corrections is a learning process on the part of the individual concerned.

The dental hygienist explained about the dental check-up and the how's and why's of dental care. The results of our food survey, also, were used in interesting classroom discussions.

At all stages of the health program, children were encouraged to ask questions, to make suggestions, to show initiative, and to assume responsibility. At Whittier, for example, the children actually took entire charge of our safety program. We had a lot of accidents at Whittier. Boys and girls were always getting hurt on the playground or, maybe, from hurrying too fast on the stairs. During the months of October and November one group of sixth grade pupils kept a daily record of the number and kinds of accidents occurring in the school and on the playground. Using the forms of the National Safety Council, they made an analysis and summary of the accidents.

Other sixth grade children became safety officers who supervised the playgrounds, enforced the safety rules devised by the student health committee, and taught the younger children how to play safely. Still others zoned the playground so that each grade had a special place to play during recess and the outdoor instructional period. As a result of this intensive program the children became extremely safety conscious and there was a drop in school accidents—from 66 to 21 per cent.

Just as in a business office, our entire program was expedited through the use of simple printed forms. One of these was called the "Teacher's Health Worksheet," and there was one for each child in the building. On it, the teacher recorded results of the health examination for each child as interpreted to her by the doctor and nurse, results of the hearing, speech, and vision tests, and information obtained from the school nurse, social worker, dental hygienist, as well as corrective work for any impairments found. This made a continuous up-to-date and permanent story of each child's health. Stress was placed on the making of a plan for correction and an attempt to carry out this plan. This technique also helped us view the child as a whole being. Often in health programs we take the child apart through our various health tests and, like Humpty-Dumpty, never put him together again.

In the elementary school, the classroom teacher became the key person in the referral and follow-up program. She was present at the health examination of each of her pupils and recorded the findings and recommendations of the doctor and nurse on the work sheet. On the secondary level, the home-room teacher attended a conference after the examination of each of her advisees, at which time the doctor discussed the results of the examination. If the findings of the examination warranted it, all of the teachers of a particular student were called in for the conference. This is leading to individualization of curriculum planning on the secondary level. Also, the doctor studies the work sheet and other information about each pupil before the examination so as to learn as much about the pupil as possible.

Children with health defects were, of course, referred to private physicians or to clinics and health agencies, and we checked closely to see that corrective measures were actually followed through. But many children, under par but without obvious defects, needed only such simple help as rest and food to build them up again. The P.T.A. equipped an empty classroom at Whittier with cots and bedding so that tired and over-active children could get an hour's rest, both

morning and afternoon if they needed it. These children were selected as a result of screening by the teacher and the nurse. The parents were informed about the rest program during school time and advised to carry out a similar program in the home. The rest program during the school day would be discontinued as the home care began to improve and results were evident in the pupils. These pupils were provided a hot lunch at noon, if necessary.

Over 100 pupils benefited from this type of special program. Careful records were kept of improvements noted. Teachers mentioned that certain pupils seemed to learn more easily, they were more relaxed, they looked better, behaved better in the classroom. Teachers valued this supervised rest period as a means of helping tired and undernourished children do better work in school. Teachers reported that teaching was more pleasant and more productive because of the better condition of the learner. A successful health program needs to be more than additional work for the teacher. It must show results by making teaching more satisfactory and effective with the group concerned.

A federal hot lunch program provided good meals at noon for the children whose mothers were employed through the middle of the day.

One of our committees, that on physical environment, greatly improved the housekeeping and the general set-up of the school. The seats in the classroom were of the old fashioned, screw-to-the-floor type, rigid and uncompromising. About half of these were replaced with movable, modern seating. The other half were released from the floor so they could be moved around to take advantage of lighting and the current teaching program. Even without new lighting fixtures the lighting was improved, through proper use of shades and different arrangement of seats.

By providing Whittier with a full-time physical education teacher, it was possible to give each child half an hour of physical education every day, once or twice a week with a special teacher and three times with his classroom teacher. In addition, we had a thriving after-school recreation program with clubs and games for every age group. Voluntary leadership was secured for this program.

We were fortunate at Whittier in having the services of mental hygiene nurses—girls from the university who specialize in psychiatric work. They come to our center, one at a time, to work for the period of a university quarter. Staff conferences have been held in all cases where special care seemed indicated, a program of play therapy has been put into operation, and teachers have been given excellent help in handling children with emotional problems. In both of our schools, teachers asked for assistance in helping the child with problems as their first need in inservice education.

Although the demonstration at Franklin was similar to that at Whittier, it departed in several important respects. We had to key our work to a different age level. Teen-age children recognize the value of good health and are beginning to take responsibility for their own welfare; and in the junior high we found that the home-room, where the student reports to the same teacher once each day, was the natural center for the health guidance program. To carry out this individual health guidance we had what we referred to as an extended home-room period each week. During this time, discussions and conferences were held regarding current health problems, an opportunity was provided for follow-up on dental work, surveys and tests were given, various health activities going on in the school were explained and discussed. Each home-room teacher had a record for each one of his or her advisees on the Health Worksheet.

Information received from the nurse, the doctor, results of hearing, dental, and vision screening tests were recorded on this record. This health picture of the pupil, with recommendations, gave the teacher valuable information to use in individual guidance. This individual guidance program was paralleled by a program of group health instruction for each grade.

At Franklin, one vital source of important health information was a three day General Mills nutrition survey like the one conducted at Whittier. Spot surveys were made at school on washing hands before lunch and wearing glasses by students who need them. One survey checked the home conditions of our 575 pupils—facts about house construction, lighting, heating, home ownership, etc. One survey asked parents what they thought the school should teach in health matters; another test quizzed pupils to find out what understanding they had about health; still another investigated sources of health knowledge. "Know Yourself," a test for spotting emotional troubles, was given by our counselor to all members of the seventh grade class. With the exception of the last test, the conduct of these surveys had the assistance of the members of the pupils' health committee.

We accomplished many other things at Franklin. After years of sooty neglect the school blossomed out in a new coat of paint (in so far as possible each teacher chose the color for her classroom), and the swimming pool was repaired. We started work on a north side dental clinic which will be ready this fall. The Minneapolis Council of Social Agencies took the leadership in securing this clinic as none existed on the north side for use by these pupils. I speak of individual items, but in the actual working of the project all the items were integrated into one smooth-running health demonstration.

In both of our schools we have conducted important inservice education for teachers. We have provided them with kits of practical materials for classroom teaching and built up extensive reference libraries on health. We have had numerous talks by professional health personnel. The teachers, throughout, have been given enthusiastic support.

The parents, too, have been coöperative. It was the mothers who set up and supervised the children's rest room. They have helped with surveys, with vision and hearing tests, served on councils and committees. They, too, have helped in the after-school recreation program—leading Scout and Brownies' troops, or coaching a volleyball game. Also, they have organized their P.T.A. and the adult education program around the "health theme."

The homes and communities in each district are kept informed about the school health program through the publication of a *Health News*. The writing of this news is a language project, but the pupil committees in each school decide upon its content and theme for the month.

Have the projects been worthwhile? The answer is definitely "yes." I could quote the results of statistics that would give proof of this; but the statistics should wait, I think, until the end of our two year project. At the end of only one year's work, however, our pupils have a more pleasant, more healthful environment in which to work and play. Their daily schedule is adjusted to their individual health needs. The whole curriculum is directed to the development of a well rounded, integrated, healthful personality. Teachers, parents, consultant, pupils, special health service personnel, community health representation are being given an opportunity to work together for an effective school health program.

Seattle's Public Health and Education Departments Coöperate in Organizing and Conducting a Food Handler's Training Program*

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THE administration of Seattle's Training Program for food handlers is the joint undertaking of the Seattle Public Schools and the Seattle-King County Department of Public Health.

In the spring of 1947, it was concluded that the annual physical examination of food handlers was insufficient for the purposes for which it was intended. Yearly physical examinations were considered of little significance in protecting public health, especially if the prospective food handler was not familiar with the simple sanitation measures for preventing the spread of communicable diseases in food and drink establishments. It is possible for a food handler to contract a communicable disease shortly after such an examination and become dangerous not only to the public but to fellow workers as well. The local food and drink establishment ordinance gave the Health Department authority to determine whether or not a food handler was in any way dangerous or otherwise unsuitable as an employee in a food or drink establishment.

In order to fulfil our responsibility in connection with the food and drink establishments it was decided that all food and drink establishment workers should be familiar with the measures for preventing the spread of communicable diseases in such establishments. To accomplish this purpose the Health Department announced a new policy, effective February 1, 1948. The requirements for the annual food handler's permit are:

1. Satisfactory physical examination (routinely only a chest x-ray is required), which primarily serves as case finding for tuberculosis. About twice the average incidence rate of tuberculosis has been found among food handlers in our community.
2. Certificate of satisfactory attendance at an approved food handler's course in lieu of passing a written examination in sanitation procedures.

As early as 1945, food handlers' courses were sponsored by the Health Department and the Public Schools. In 1945 and 1946, a food handler's training program was made available to food establishments on a voluntary basis. A few of the larger establishments took advantage of the program but it soon became evident that the establishments and employees who were most in need of training did not participate in the program; consequently the objective was not reached and attendance lagged to the point where finally the courses were discontinued.

Beginning in the summer of 1947, the Health Department and the Seattle Public Schools had several meetings with a joint advisory committee comprising representatives from the Washington State Restaurant Association and from the Culinary Unions for the purpose of setting up a food handler's training program acceptable to all concerned. It was decided to tackle the problem on a compulsory basis through the issuance of food handlers' permits as indicated above. A legal ruling on the existing food and drink establishment ordinance indicated that the Health Department had no legal right to require attendance at a food handlers' class as a prerequisite to issuing food handler's permits but could require an examination on sanitation procedures to determine the fitness of a prospective food handler.

After several weeks of personal contacts with Culinary Union representatives in the Seattle-King County area, the advisory committee obtained support on the adoption of the new policy in connection with the issuance of food handlers' permits. Invaluable assistance in the early contacts was provided by the local Cooks' Union whose representative paved the way for personal interviews with officials of all of the Culinary Unions. It was pointed out to the union groups that a basic knowledge of disease prevention measures was essential on the part of their workers both for the protection of the workers themselves and the customers.

After several meetings of the joint advisory committee representing the Seattle Public Schools, the Department of Public Health, management and labor, a course outline was approved.

The Seattle Public Schools employed a former Vancouver, Wash., Clark County-City Health Department Sanitarian, William J. Dingle, to conduct the classes. Knowing the food handler's problems from firsthand experience, the instructor talks their language and keeps his lectures on a non-technical level. In fact, the classes were made so interesting that prospective pupils had to be asked to wait their turn which came when their present permits expired. (Permits are good a year from the date they are issued.) As food handlers come to the Health Department for their permits they are given a physical examination (chest x-ray) and assigned to food handlers' classes at the Seattle schools. Upon the completion of the course they are issued their permanent health card or permit which is good for a year from the date issued.

At the present time we are training approximately 24,000 food handlers a year in the Seattle area. This requires 1 full-time and 4 part-time instructors, all of whom are experienced sanitarians. The cost of instruction approximates the combined salaries of 2 full-time sanitarians. The program is financed through Vocational Education Funds of the Seattle Public Schools, derived from the Seattle Public School District, from the state government, and the federal government. The Seattle Public Schools finance approximately 35 per cent of the cost through local school district funds and receive the remaining 65 per cent from the Washington State Department of Public Instruction which makes funds available in accordance with the number of student hours and instruction hours provided. The Washington State Department of Public Instruction, in turn, receives approximately 15 per cent of the cost from funds made available by the George-Barden Act of the Congress of the United States. The George-Barden Act, the one which helps finance the Seattle program, as well as the Smith-Hughes Act, makes funds available to states for vocational education purposes, provided that qualified instructors are employed, the training is limited to persons engaged in the trade or vocation, and that the training is an essential part of the vocation itself. In brief, all voca-

tional funds are allotted for the purpose of increasing the skill and knowledge of persons employed in occupations or those in the preparatory stage. This program is in line with the objectives of vocational education, whereby assistance from additional funds is made possible.

The 24,000 food handlers have been broken down to six different types consisting of:

1. Restaurant workers, including cooks, waiters, waitresses, bus boys, and dishwashers
2. Bartenders and barmaids
3. Meat cutters, packing-house workers and sausage salesmen
4. Dairy and milk product workers
5. Bakery workers
6. Miscellaneous workers, including candy and cracker workers, grocery clerks, warehousemen, and truck drivers

With the exception of the miscellaneous and dairy groups which attend only one session, all are required to attend two 1½ hour classes on sanitation and safety procedures. It was felt that more benefit would be derived and more interest inspired if different courses were given for each class of work. For example, a meat cutter is not interested in how to wash glasses nor does a bartender care about meat market sanitation.

Briefly, the courses consist of an explanation of bacteriology and its significance to food sanitation, together with slides showing good and bad sanitation practices in local establishments. The restaurant workers, in addition, are also shown the U. S. Public Health Service and industry-produced sound film strips.

Six months after the course had been inaugurated, a spot check of 32 taverns by a State Liquor Board Inspector revealed that 16 were washing their glasses in the required manner. Bartenders in 14 of these 16 places had attended the food handlers' courses. Previously, the inspector explained that he would have been lucky to find 2 out of the 32 taverns that were washing glasses properly during a rush hour.

To date, the courses have been well received. The reactions from both labor and management have been favorable. The most common criticism has centered on the fact that bosses or managers are not required to take these courses unless they are food handlers. Therefore, in order to strengthen the City's Food Establishment Ordinance and also take care of this criticism, an amendment was passed in September, 1948. The amendment reads as follows:

"The health officer may require the manager or operator and any employee of a food establishment to take a written and/or oral examination in the public health aspects of food handling; and may also in addition to, or in lieu of, such written and/or oral examination, require them to attend a food handler's training course approved by the health officer. The owner of a food establishment shall designate and notify the health officer of the name of the manager or operator who is directly responsible for the sanitation measures in the establishment."

Separate courses for operators and managers were inaugurated in February, 1949.

It is planned to revise the regular courses each year in order to give new and additional information to those persons who attended the previous year. The field of instruction is of sufficient breadth and length to allow for new material, together with a review, to be given each year.

It is interesting to note that when the new amendment to the food ordinance came up for consideration there was no organized objection to compulsory attendance at a food handlers' class. It is gratifying to know that food and drink establishment workers and their unions endorsed the new requirements.

In conclusion, we would like to point out that the food handlers' training program in the Seattle-King County area under the joint sponsorship of the Department of Public Health and the Seattle Public Schools is proving successful. It was possible under this arrangement to provide over 80,000 student instruc-

tions hours in 1948 without appreciably affecting the overall expenditure budgets of the school system or the Health Department. The facilities and finances are available from federal, state and local funds. It is up to local public health and public school authorities to make use of available sources.

The joint program in the Seattle area is accomplishing a worth while purpose and is a source of pride to the public health and school officials.

Massachusetts Public Health Conference

About 600 persons attended the 3rd annual Massachusetts Public Health Conference in Amherst, Mass., June 15-17, 1949. The meetings opened with a discussion of "New Horizons for Public Health Personnel," led by William R. Willard, M.D., Margaret G. Arnstein, and Clarence I. Sterling. At another session Hugh R. Leavell, M.D., discussed the "Health Section of the Hoover Report." Vlado A. Getting, M.D., reviewed current state and federal health legislation; Ira V. Hiscock, Sc.D., reviewed the Boston survey in "Lessons to be Learned from the Greater Boston Community Health Survey," and the Governor spoke on "The State's Responsibility for the Public Health." At a panel on "New Interests in Public Health," mental health, diabetes, cancer, geriatrics, accident prevention, diet therapy, heart disease and dental health were discussed. C.-E. A. Winslow, Dr. P.H., summarized the conference with a round-up of the highlights of the various meetings.

The following officers for 1949–1950 of the Massachusetts Public Health Association were elected and took office at the annual banquet on June 16:

President: Mary E. Spencer, Ph.D.
First Vice-President: Leon A. Bradley, Ph.D.
Second Vice-President: Arthur D. Weston
Treasurer: Catharine Atwood
Secretary: Solomon L. Skvirsky, M.D.
Representative to APHA: Raymond S. Patterson, Ph.D.

Some Effects of Health Council Programs on Basic Health Education*

JOHN W. FERREE, M.D., F.A.P.H.A., AND
S. S. LIFSON, M.P.H., F.A.P.H.A.
American Heart Association, New York, N. Y.

As part of an editorial entitled "Hollering and Kicking," *The Medical Bulletin* of Indianapolis and Marion County, Indiana, expressed the sentiments of the medical profession in many areas. "Physicians," the author wrote, "here as elsewhere, have been critical of volunteer health agencies, the feeling being that the medical profession many times was not consulted in problems which were of rightful primary concern. Many times, however, when these little discussions were boiled down it was found that the fault rested with a lack of understanding between the health agency and the profession. They had no common meeting ground." That last sentence expresses the vital need which is propelling intelligent community groups into the formation of health councils.

The editorial ended with this admonishment: "In other words, the day has long passed when the profession could stand around and holler. Hollering is a swell exercise for the lungs but today—in 1948—you have to back it up with a little muscle and brainwork too. In still other words:

> "A horse can't pull while kicking
> This fact I merely mention
> And he can't kick while pulling
> Which is my chief contention."

This editorial is mentioned because it illustrates a concrete achievement of a local health council organization even at its very earliest stage of development. In the mind of at least one man involved in the organization of the health council in Indianapolis, the process had done two things: It had presented to him the picture of opportunity to his profession for more full participation in matters of interest to them and it had instilled a larger understanding of his profession's responsibility.

It is this aspect of the health council's health education value and influence that I would like to point out today.

From our experience in working with health councils and councils of social agencies, we have learned that the greatest problem in these community planning bodies is to develop an appreciation of the educational needs of the people of the community and to reach agreement as to how these needs can be met. We have found that most councils and health divisions have as their prime function the discovery of problems through surveys of needs and resources. The degree to which citizens have participated in these fact finding procedures has varied with the philosophy prevailing in each council. Action seems to have resulted from fact finding in proportion to the degree of participation by the rank and file of the community with the professional health workers.

* Presented before the Public Health Education Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

At the time of presentation the authors were on the staff of the National Health Council.

We think we see a definite trend on the part of health councils to broaden their base of representation so that more citizens of the community can participate. The main problem to be solved by councils which have thus broadened their representation is that of resolving the relationship of the professional worker to the so-called lay person. In this connection professional health workers have had to define their role. Most frequently they have found it is one of sharing experiences and knowledge rather than one of autocratic imposition of a predigested plan of action.

This approach has worked out very well in the fact finding stage. We have found however, that when it comes to the coöperative community planning phase, involving the contribution which each agency will make to the program, there has been a reluctance shown by the individual specialized health agency to see its contribution as one related to the overall community program. Special agencies very often do not realize that unless a broad foundation is laid their special interests cannot wholly be fulfilled.

There is at the present time, however, growing concern on the part of health agencies to discover the health education needs of the community, and to come to agreement as to a common approach and to the individual contribution that can be made by each.

For example, in Philadelphia five health agencies agreed last year on a common approach that might be made in helping to meet the health education needs of one area in that city. Through the health division of the Health and Welfare Council, these five agencies agreed to share their resources for a generalized program of health education and also agreed that contact be made in this area through one person acceptable to all five agencies. This made it possible for the services of these agencies to be made available to residents when those services best met the needs and interests of those residents. Such a program eliminates the need for separate and repeated approaches by each agency. The coördinating person chosen by all five, can draw on the services of each, without repeatedly setting the stage anew and confusing the public.

In the course of the health division's work in Philadelphia, it was found that there were many agencies in the city concerning themselves in some degree with health education. Yet there was no interchange between these groups and there seemed to be little understanding of health education purposes and methods. To remedy this situation, the health education committee held a 3 day laboratory for the personnel of some 50 agencies that were attempting health education.

Reports that have come in from Philadelphia show conclusively that this health education laboratory was not an isolated experience in the lives of the persons who attended. The health division has developed a continuing program which includes a coördinated approach in the forementioned area of Philadelphia. A Resource Study Subcommittee is well on the way to completing a health education resource manual. A Committee on Evaluation is working on a form for evaluation of health education programs.

Most of you know of council organizations that have made outstanding contributions to well coördinated health education programs. They have pooled resources of personnel, money, and other facilities, and have demonstrated the value of common planning.

These efforts are important guideposts to what can be accomplished. But the fact is that we cannot speak of the health council program influencing the health education of the public in any merely narrow sense. Far and beyond specific constructive undertakings, im-

portant as they are, is the broader educational influence of almost every aspect of a council program. For the very process of working together is an educational one. The processes involved in studying needs, agreeing on which of them are of paramount importance, mapping out plans of action, deciding on what contributions can be made best by which organizations, are educational processes in the highest sense.

Let us assume for a moment that you and your organization are prospective participants in health council affairs. *What are some of the educational factors* which will influence you? What are some of the things that the health council can do for those meeting within its framework? There will be the realization that your concerns and those with whom you meet are essentially similar and that you are all interested in doing better the tasks entrusted to you and your agency. You will have an unparalleled opportunity to become well acquainted with your colleagues in the field and the work they are trying to do. In the process of discussion, planning and doing, you will discover that others have problems very similar to yours and those of your organization. You begin to see the interlocking relationship of your program with that of others. And it may be that, with this realization, you lose some of your defensiveness with regard to your job and your agency. You see the relationship of what you are doing to the broad picture of community health need. *And* what *may* seem trivial but actually is not, you will find enjoyment in exploring mutual problems with others interested in the same goals.

This simple business of understanding cannot be overestimated. Valuable efforts in public health have failed all too many times just because there was not enough understanding of aims and objectives, reasons and methods; because of meaningless rivalries which could be adjusted; because there was no machinery for setting the facts before all that had a legitimate interest in them. "There was no common meeting ground." Consider the alienation of certain professional groups from the very valuable efforts of voluntary and official agencies in many instances just because they were not in on preliminary planning, did not understand the broad purposes of the program. A certain kind of health education which is the framework of all our efforts had not been done.

Sometimes, to get initial coöperative effort there has to be a strong rallying point for all concerned. One such strong common interest is the promotion of local health departments. The National Health Council is currently giving priority to this problem and has watched with interest some of the developments in connection with community efforts in this direction. In Minnesota, the State Health Department with the coöperation of the Woman's Auxiliary to the Medical Society of that state, undertook to bring the problem of future local health units to the people. This was done through a series of "Health Days" around the state. As a result of six such meetings held during spring and fall, four of the areas covered by these meetings have already organized health councils. These councils make it possible for all organizations and agencies interested in health to work toward the key objective of obtaining full-time health services. By coöperating for this common goal, the participants cannot but get the "feel" of working together harmoniously and can more readily continue further coöperative effort on other problems.

In one western community the citizens, after a study of their public health needs, came to the conclusion that they needed a standard milk ordinance. Much of the milk sold in their county was un-

pasteurized, and there were certain forces in the community that did not want such a law. These forces almost won out. Fortunately there was a county health council composed of all the organizations in the county concerned in any way with civic improvement. When, through their council, they learned what was preventing them from having pasteurized milk, they initiated a campaign of public education and got the ordinance passed. The health department in this county had worked for a standard milk ordinance for several years. It had gotten nowhere because the people in the county were not concerned, nor were they brought into the picture in any way. When county residents understood what was involved, they got behind the campaign for an ordinance and it became law. Health council action turned the tide.

Almost every council activity has potential educational factors reaching deep into the community. The health council engaged in making a survey of what the community really needs most and what it already has in the way of resources is carrying out a project which is both self-educational and community-educational. In the process of making a survey, individuals and agencies alike are learning new facts and rediscovering old ones of importance to their programs and the public they serve. In this process there is the additional factor of press and word-of-mouth publicity which stirs the thinking and reënforces the knowledge of the average citizen. If the approach is right, he will learn, perhaps for the first time, that there are health agencies in the community interested in helping him and his family, and that their chief preoccupation is not fund raising.

Certainly the participation of citizen groups in these health council processes has vast implications for more far-reaching health education of the public. The public needs to be in on decisions as to what its needs are and what intelligent action is required of it to attain and preserve personal and community health. By bringing the public into partnership with the professional worker, the health council affirms its faith in the ability of citizens within a community to work together for its own betterment.

The community health council offers a great opportunity for the professional public health worker and representatives of the consumer public to join together for improved public health. Sometimes we behave as if the public had no part in this business other than to allow us to spoon feed it with our ideas, our plans, our programs. The channeling of health education to the various "publics" or communities within the community will be easier of accomplishment as those publics and communities become involved in planning and acting with professional workers.

In a time of increasing complexity the health council way offers the many earnest public and voluntary agencies dealing with health some hope of reaching the public in united fashion. The public, as individuals and as members of a community, thus primed as to the things it must do, the measures it must work for, will be far more receptive to the educational messages, the fund-raising appeals, the frequent calls to action that agencies make.

The health council can strengthen the individual agencies by pointing out the local needs in special health fields—not as isolated problems but as part of the total picture of community needs. Rather than centering on the national emphases in a special appeal, the council can relate the appeal to the local situation.

Bailey B. Burritt, former executive director of the National Health Council, says in part in his "Eight Public Health Challenges" ". . . it has been

demonstrated that the health council is an indispensable tool for securing, through the development of citizen understanding and participation, maximum results in public health. The challenge now before the members of the national, state, and local health councils is the strengthening of the council movement as an effective means of rallying behind it those agencies and individuals thoughtfully interested in public health."

In conclusion: We have a way and a method open to us for winning concerted purposeful action in the health field. Health education, not only of the large public but also of the smaller nucleus of persons who must take the leadership is essential. Like the medical gentlemen addressed by the editorial cited above, we can no longer sit and complain of our public health agency problems. Hollering and kicking are good exercise but intelligent community effort, achieved through a common meeting ground such as a health council, will achieve far more concrete results.

Take a Test

The Merit System Service booth at the American Public Health Association annual meeting in Boston attracted considerable attention with its "TAKE A TEST" exhibit. This consisted of six short sample tests, designed to illustrate the type of service being offered by the Merit System Service and to show how public health information, experience, and judgment can be measured by objective examinations.

The exhibit was repeated at the Western Branch meeting of the American Public Health Association in Los Angeles, Calif., May 30 to June 1.

The results for the Boston meeting are available in an attractively bound report which contains copies of the six sample tests, an answer key, an analysis of the scores of the persons tested, and an analysis of the items themselves. The latter illustrates the method which is used to evaluate the effectiveness of individual questions. The report may be obtained by writing to the Merit System Service, American Public Health Association, 1790 Broadway, New York 19, N. Y. $1.00.

Health Problems in Industrialized Agriculture*

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THE extent to which agriculture has become industrialized is seldom realized. Concentration of land ownership, the introduction of mechanization, specialization of crops, and readily available transportation are all serving to bring about an industrial revolution on the farm.

Since 1910, the proportion of farms of 500 acres and over has increased sharply. As a result, in 1940, only slightly more than 4 per cent of our 6 million farms accounted for almost half the nation's total farm acreage. While the mechanical cotton picker is perhaps the most dramatic application of technology, the ubiquitous tractor, the sugar beet loader, and the potato harvester are other evidences of the mechanization of agriculture.

These developments have converted an important segment of our agricultural economy to large-scale specialized crop production. With many types of specialized crops, there are sharp peaks of labor requirements. Most of this labor is furnished by the employment of local workers for pay and by the unpaid work of members of the farm family. If the farm crops of this country are to be harvested, however, it is necessary that of the total hired farm labor force of 4 million, some 600,000 workers leave their homes for periods varying from several weeks to 7 or 8 months to work in areas that have seasonal farm labor needs so high that sufficient workers cannot be recruited locally.

In the United States, there are 56 well defined major areas requiring such outside labor. These areas are located in 44 of the 48 states, and involve about 1,000 of our 3,070 counties. Workers and their families follow six major migratory patterns: The Atlantic coastal, the central, the Great Plains wheat, the Texas to the sugar beet areas, the Texas-New Mexico-Arizona cotton, and the Pacific coastal. It is likely that the number of seasonal migratory farm workers will increase, since mechanization is making it possible for the farm operator to plant and cultivate acreage that can be harvested only with the help of such workers.

Studies by the Public Health Service and the Department of Agriculture have revealed the tremendous burden of disease and disability carried by the migrants following the crops. In great measure the cause of this heavy toll of ill health is to be found in the poverty of these workers, the insanitary rural slums where most migrants make their homes, and their difficult working conditions. Public health and welfare medical services are especially meager in those areas where the concentration of migrants is often the heaviest—the 40 per cent of the counties without the services of full-time local health departments. Moreover, residence requirements and local settlement laws make it frequently impossible for migrants to receive even such public health and wel-

* Presented at a Joint Session of the Industrial Hygiene and Medical Care Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

fare medical services as are available to local residents.

The disadvantaged position in which the industrial farm worker finds himself regarding the protection of his health as a worker is illustrated by a consideration of workmen's compensation. Farm labor is certainly no less hazardous than other types of employment covered by compensation acts. Nonetheless, agricultural employment is excluded from obligatory coverage for protection against work-connected disability and the resulting costs of medical care. In 24 states voluntary coverage of farm workers is allowed but because commercial insurance rates for this type of coverage are relatively high, it is seldom carried. Eleven states specifically disallow workmen's compensation for farm workers, even on a voluntary basis. Seven states allow certain limited coverage with numerous qualifications. Only in 5 states is the farm worker specifically covered by legislation, and even in these states there are numerous limitations and escape clauses.

Occupational diseases of workers in industrialized agriculture can be reviewed only briefly at this time. As with workers in other industries, the farm worker suffers from industrial accidents, toxic exposures, and occupational dermatoses.

In 1946 as in previous years, data from all industrial groups show that the largest number of occupational deaths, 4,500, occurred in agriculture. Because of the large number of workers engaged in agriculture, the death rate of this group was not the highest among the major industries. It was, however, 74 per cent above the average and was exceeded only by the rates for mining and construction. Further, agriculture was the only one of the major industrial groups that had a higher death rate in 1946 than in the previous year.

An analysis of the causes of accidents in 1945 among 50,000 farm laborers under supervision by the U. S. Department of Agriculture revealed that farm machinery and the handling of tools were the major causes of farm accidents. The tractor, one of the most useful pieces of modern farm equipment, was found to be a prolific source of accidents. The mishandling of sugar beet topping knives, hoes, pitchforks, cane cutting knives, and other hand tools accounted for about a third of the work-connected injuries. For this group of 50,000 workers, it was estimated that 9 per cent of all cases of illness were due to accidental causes and 3.1 man-days per 1,000 man-days of employment were lost through injuries.

In the field of accident prevention, as in workmen's compensation, there may be seen the disparity in the organization of services available for the protection of the farm worker as compared with similar services in manufacturing. Industrial safety programs, while far from complete, have been increasingly applied to protect industrial workers from disease and injury. On the other hand, the paucity of such efforts on behalf of farm workers is striking.

In regard to toxic exposures, lead poisoning among workers in apple orchards has been called to the attention of industrial hygienists by the occurrence of several "epidemics." Methyl bromide used in processing figs has been reported as the cause of severe intoxication. Chemical fertilizers such as anhydrous ammonia may cause serious poisoning and pesticides used as plant sprays create a hazard to the farm worker either in the process of spraying or of harvesting.

A large number of newly developed organic chemicals has been introduced to farming. Many of them are exceedingly toxic and represent a potential hazard to agricultural workers. Thus, for example, there was recently reported the death of 1 agricultural worker and the serious illness of 5 others resulting

from overexposure to ethylene chlorhydrin, a chemical used in a process which causes seed potatoes to sprout rapidly.

Many of the specific irritants responsible for the occupational dermatoses seen in industrialized agriculture are known, and long lists of such substances have been published. For example, there have been described "corn rash," hop pickers' dermatitis, a dermatitis due to the handling of citrous fruits and carrot handlers' dermatitis, to mention only a few. Other skin disorders seen in agricultural workers such as the "muck sores" of the Florida Everglades are recognized locally. In passing, the high occurrence of cancer of the skin in the rural South which is of interest in exploring possible environmental and occupational factors in the etiology of this disease should be mentioned.

Unpublished reports of the U. S. Department of Agriculture's Office of Labor indicate that muscle strain of the lower back, legs, and shoulders was a relatively important cause of occupational disability among the farm workers under medical supervision by that agency. In view of the long hours of work in the fields and the severe muscular exertion of stoop labor, the occurrence of this type of disability is not unexpected. In this group of disorders, there has been described a tenosynovitis of the hands of cotton pickers, which occurs early in the picking season, as a specific occupational disease.

While it is true that our professional attention has been largely directed to occupational injuries and diseases among workers in industrialized agriculture, as with other industrial workers, these disabilities by no means constitute the bulk of the health problems of these many men, women and children. Studies of absenteeism among industrial workers, other than agricultural, have demonstrated that about 90 per cent of their disabilities are non-occupational in origin, and that for every day lost due to industrial diseases and accidents, 15 are lost as the result of ordinary day-to-day adult illnesses.

Comparable data for workers in industrialized agriculture are not available. The most adequate information relating to the non-occupational disability of farm workers—that from the U. S. Department of Agriculture's Office of Labor—reveals that there is a similar distribution of occupational and non-occupational disease. For the agricultural workers under medical supervision by that agency in the four year period 1943 to 1947 approximately 352,000 cases of illness received physicians' care. This represents an incidence of all illness of 1,086 cases per 1,000 workers per year. Over 50 per cent of these cases can be considered to be non-occupational in origin, if the unsatisfactory housing and insanitary environmental conditions so frequently associated with industrialized agriculture can be dissociated from the occupation itself. In terms of day-to-day illnesses requiring physicians' services, 98,000 of the 352,000 cases of illness, or about 28 per cent, were respiratory; 51,000, or about 14 per cent, digestive in origin, and 37,000, or about 11 per cent, infectious.

Recurring and frequent upper respiratory infections were found to be associated with the overcrowded, poorly heated, and poorly ventilated housing accommodations of many farm workers. Digestive disturbances, for the most part diarrheas, resulted in many instances from inadequate refrigeration and other poor food handling practices. In mass feeding the practice of making up sandwiches the previous night to be consumed in the field the following day, was the contributing cause of several large outbreaks of food poisoning.

Two-thirds of all infectious diseases were venereal in origin and, although

the control of venereal diseases among workers in urban industry has aroused considerable attention, effective measures have not been applied to industrialized agriculture. There are of course, a few notable exceptions such as the state-wide venereal disease program for migrant farm workers in New Jersey and the mass blood testing of farm workers in Idaho.

The relationship between economic and occupational status and tuberculosis rates has not been as sharply delineated for workers in industrialized agriculture as it has for other occupational groups. X-ray surveys of workers in areas where industrialized agriculture has reached its highest stage of development indicate, however, that x-ray evidence of tuberculosis is found about twice as frequently as among the general population.

Health problems of farm workers in industrialized agriculture must be viewed against the background of the far-reaching social and economic changes that have taken place. For these workers agriculture is no longer a "way of life" but a part of the industry of the nation. The occupational disabilities of agricultural workers require that industrial physicians, industrial hygiene and safety engineers extend the application of preventive medical technics to workers in the agricultural industry. I should like however, to emphasize the important role of *non*-occupational disease as a cause of disability among workers in industrialized agriculture. Indeed, if a satisfactory industrial hygiene for agricultural workers is to be achieved, efforts must be directed toward the provision of adequate medical services for all workers in industrialized agriculture. There is particular need for such services for seasonal migratory farm workers.

"Oscars" for Safety Films

The National Committee on Films for Safety recently announced its 1948 "Oscars" for films making outstanding contributions to safety.

The four motion pictures and two sound slide films, that received awards, together with their classification and producers are:

Motion Pictures

"Then It Happened"—general safety—Forest Service, U. S. Department of Agriculture

"The Safest Way"—traffic safety—Pennsylvania State College for the American Automobile Association

"This Way Out"—occupational division—American Airlines

"Driven to Kill"—for theater showing—Sound Masters Inc., for the American Transit Association

Slide Films

"Award to the Wise"—traffic safety—Paragon Pictures for the Zurich Insurance Companies

"Helping Hands—Electrical Hand Tools"—occupational division—Paragon Pictures for the Zurich Insurance Companies

In addition, honorable mention or special commendation was given to "Wheel Sense," "Falling Timber," "Ski Tips," "Saga of Sawdust Sam," "Let's Stop and Go Safely," and "Lifelines." Further information about these is available from the National Safety Council, 20 N. Wacker Drive, Chicago 6.

The National Committee on Films for Safety, sponsored by the National Safety Council, includes representatives from 20 national organizations with an interest in safety. H. E. Kleinschmidt, M.D., administrator of health services, North Atlantic Division of the American Red Cross, represents the American Public Health Association.

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THE CHALLENGE OF CHILD CARE

WE have referred in an earlier issue [1] to the illuminating study of the Academy of Pediatrics on Child Health Services and Pediatrics Education. We are happy to present this month an analysis of some of the high points of this study by Dr. Bain and Dr. Stuart.

The study deals with many problems, with quality of service [2] and with pediatrics education, for example. The most striking feature of the report for the health administrator and health planner is, however, the startling quantitative deficiencies revealed.

It is somewhat of a shock to learn that nearly 22 children per 1,000 in one state were under medical care on a given day; while in another state the figure fell to less than 8 per 1,000. For dental care, the corresponding figure was over 7 per 1,000 in one state and less than 1 per 1,000 in another. It is disquieting to find that 61 per cent of hospital births occur in hospitals that have no newborn nursery for sick infants separate from facilities for well infants; and that 40 per cent of such births are in hospitals with no house staff. Even more directly challenging to the public health profession is the fact that only 6 per cent of the children under 5 years of age actually receive the essential protection of well child conference service. (More, no doubt receive health guidance from private physicians but, of those physicians caring for children only 25 per cent are pediatricians.)

These deplorable shortcomings are clearly and directly related to economic status. "The parents are unable to pay for services."

Look at the diagram reproduced by Bain and Stuart. Note that the eleven states in the lowest of four income groups have a 27 per cent higher infant mortality rate than the states in the highest income group; and that, in these less fortunate states, the infants receive less than half the medical care and less than a quarter of the home nursing visits provided in the more prosperous areas.

Is this not indeed a challenge to the public health profession, to the Congress, and to the people of the United States—as well as to the Academy of Pediatrics?

REFERENCES

1. *A.J.P.H.*, 39:790 (June), 1949.
2. For a general discussion of this subject, see Committee on Medical Care. The Quality of Medical Care in a National Health Program. *A.J.P.H.*, 39:898 (July), 1949.

THE CAUSE WE SERVE

THE readers of this JOURNAL are experts in the field of public health; but they are also citizens. More than this, their professional tasks themselves are of such a nature as to stimulate serious thought in regard to the basis of the society in which they function. We are all, in a sense, public servants, whether employed by the government, by a voluntary agency, by a university. Our enthusiasm and devotion depend on a conviction that the city, the state or the nation which we serve is in itself worth saving and that its salvation is of vital importance for the future of the human race on this globe.

There is no doubt that the philosophy of Washington and Jefferson, of Lincoln and Wilson, and the two Roosevelts is challenged by a powerful and ruthless alien power. That power we are meeting, diplomatically, with firmness and patience and skill. On a military scale, we are preparing for all eventualities, if diplomacy should ultimately fail. We can face the physical might of the Soviet Union with calm and confidence.

There is, however, a more subtle danger, against which we must be on guard. In 1898, William Graham Sumner made a notable address on "The Conquest of the United States by Spain." What he feared was that our defeat of an imperialistic empire might lead us to adopt its imperialistic colonial policy and thus that, while winning the physical battle, we should be conquered by the ideology of the vanquished. The history of our dealings with Cuba and the Philippines has shown that Sumner's fears were unfounded. We must be watchful, however, lest unjustified panic should lead us to follow those Congressmen and columnists and radio commentators who desire to counter the military strength of Moscow by adopting the totalitarian and repressive ideology of the Kremlin.

In this connection Chancellor Robert M. Hutchins delivered a notable address on the 237th Convocation of the University of Chicago. He said, in part:

> We hear on every side that the American Way of Life is in danger. I think it is. I also think that many of those who talk the loudest about the dangers to the American Way of Life have no idea what it is and consequently no idea what the dangers are that it is in.
>
> You would suppose, to listen to these people, that the American Way of Life consisted in unanimous tribal self-adoration. Down with criticism; down with protests; down with unpopular opinions; down with independent thought. Yet the history and tradition of our country make it perfectly plain that the essence of the American Way of Life is its hospitality to criticism, protest, unpopular opinions, and independent thought. A few dates like 1620, 1776, and 1848 are enough to remind us of the motives and attitudes of our ancestors. The great American virtue was courage.
>
> We ought to be afraid of some things. We ought to be afraid of being stupid and unjust. We are told that we must be afraid of Russia, yet we are busily engaged in adopting the most stupid and unjust of the ideas prevalent in Russia, and we are doing so in the name of Americanism. The worst Russian ideas are the police state, the abolition of freedom of speech, thought, and association, and the notion that the individual exists for the state. These ideas are the basis of the cleavage between East and West.
>
> Yet every day in this country men and women are being deprived of their livelihood, or at least their reputation, by unsubstantiated charges. These charges are then treated as facts

in further charges against their relatives or associates. We do not throw people into jail because they are alleged to differ with the official dogma. We throw them out of work and do our best to create the impression that they are subversive and hence dangerous, not only to the state, but also to everybody who comes near them.

The result is that every public servant must try to remember every tea party his wife has gone to in the past ten years and endeavor to recall what representatives of which foreign powers she may have met on these occasions. A professor cannot take a position on any public question without looking into the background of everybody who may be taking the same position on the same question. If he finds that any person who is taking the same position on this question has been charged with taking an unpopular position on another question, the professor had better not take any position on this question, or he may be haled before some committee to explain himself.

Is this the American Way of Life? The great American word is freedom, and in particular, freedom of thought, speech, and assembly. Asserting the dignity of man, and of every man, America has proclaimed and protected the freedom to differ. Each man is supposed to think for himself. The sum of the thoughts of all is the wisdom of the community. Difference, disagreement, discussion decided by democratic processes are required to bring out the best in the citizens. America has grown strong on criticism. It would be quite as consistent with the American Way of Life to offer prizes for the most penetrating criticism of our country as it would be to offer prizes to those who have done the best job of advertising it.

The heart of Americanism is independent thought. The cloak-and-stiletto work that is now going on will not merely mean that many persons will suffer for acts that they did not commit, or for acts that were legal when committed, or for no acts at all. Far worse is the end result, which will be that critics, even of the mildest sort, will be frightened into silence. Stupidity and injustice will go unchallenged because no one will dare to speak against them.

To persecute people into conformity by the non-legal methods popular today is little better than doing it by purges and pogroms. The dreadful unanimity of tribal self-adoration was characteristic of the Nazi state. It is sedulously fostered in Russia. It is to the last degree un-American.

This is a sound and a vital message. As is frequently the case, Shakespeare said it in fewer words,

> "To thine own self be true
> And it must follow as the night, the day,
> Thou canst not then be
> false to any man."

IODIZED SALT

A BILL requiring all table salt (except "Kosher" salt and salt for medical and surgical purposes) to contain a specified amount of iodine, sufficient to prevent endemic goiter, was introduced in the 80th Congress, was considered by the Committee on Interstate Commerce of the House and died in committee last July, in part because of conflicting philosophies.

Opposition to the bill was expressed by the Salt Producers Association, by some of the canning and food processing industries, and by individual physicians claiming to represent clinical dermatology.

Scientific and medical opinion was, and is, unanimous as to the benefits to be had from the presence of the small amount of iodide in table salt necessary to protect persons at all ages against the deficit conditions of iodine inadequacy.

It was argued by some lawyers that the bill was unconstitutional in that it forced medication upon persons by law. Food processors called attention to the possibility that flavor and other qualities of foods might be injured by the iodine in salt and advised research to determine the facts. Several dermatologists in

their individual capacities expressed a fear that some of their patients with acne vulgaris would find it difficult to avoid irritation from such iodized salt.

Within the year, the fallacy of the claims of food processors has been proved by carefully controlled experiments at Ohio State University and elsewhere.

Official opinion of organized dermatology has been expressed as not in opposition to universal use of iodized table salt.

A new and simpler bill to require that all table salt contain the necessary minimum of iodide was prepared in collaboration with the U. S. Public Health Service, the Food and Drug Administration, the American Medical Association, and the American Public Health Association, but has not been introduced in the present Congress because of an understanding arrived at between the Salt Producers Association and the four organizations above mentioned at a meeting in New York City on February 10, 1949.

This suggestion was discussed at length by members of the Salt Producers Association at their meeting in Chicago, March 24, 1949, and all manufacturers of table salt who were present expressed themselves as favorable to such action.

The proposal is now to develop promptly, and to continue as long as may be necessary, a sustained nation-wide educational campaign to teach the retail grocer to sell iodized salt and the retail consumer to purchase only this quality of salt in the interest of personal and national health and the prevention of disease.

Educational matter will be prepared by members of the Committee on Endemic Goiter of the American Public Health Association. The full strength and influence of the wholesale and retail grocery trade will be utilized to teach people to choose health-giving salt and avoid the deficit salt so commonly bought at present, to look upon such iodized table salt as they look upon enriched flour or enriched margarine, and not as if it were a medicated salt.

It is believed that the trade habits of the housewife and grocer can be so changed that there will be, after a few years of such educational effort, little or no demand for other than iodized salt and it will not be necessary to require iodization of all salt, or ultimately to label it as if it were exceptional or a medicated salt. We might even become as intelligent in our preference for this protective, reinforced, fortified or complete salt as our farmers have become in using such iodized salt for their cattle.

In a democratic manner, of good omen, an understanding adjustment or compromise has been arrived at by two parties each of which has the public health at interest and both of whom have had long experience with and made large contributions to the prevention of endemic goiter in certain states by use of iodized salt educationally fostered.

If the hopes of the two groups are borne out by the event, legislation will not be required.

GARBAGE GRINDERS—A PUBLIC UTILITY

WE have discussed in these columns [1] the advantages of the kitchen garbage grinder and expressed the view that some day the garbage can would be considered as archaic a device as the sanitary privy. The installation of kitchen grinders has made progress; and housewives who have used this method of disposal have found it of enormous value in promoting the efficiency and the comfort of home life.

The cost of the equipment has, however, limited the utilization of this device. When grinders are installed in individual homes, there is, of course, no compensating saving in public garbage collection. Economy as well as amenity can only be attained when the use of grinders is universal. In such a situation, the amortization and upkeep of household grinders (and the slightly increased cost of sewage treatment) would in most communities be a fraction of the cost of garbage collection and disposal—as conducted at present.

The attainment of this highly desirable end has now been made possible in one state through the passage of Act No. 147, Chapter 87 of the Laws of 1949, of the State of Indiana.[2] This Act gives each city or town (which has an adequate sewage disposal plant) the right to "acquire, own, operate and maintain . . . a garbage disposal system consisting of garbage grinders to be installed in private residences, business places or other buildings." Power is given to issue Revenue Bonds to pay costs of purchase, installation and upkeep in all houses or other buildings whose owners desire such service and to set just and equitable charges to be paid by the users of the equipment; and the community may then discontinue garbage collection and garbage disposal by other methods.

This is a courageous and imaginative step in adopting municipal legal practice to advance in scientific sanitation. Its actual operation should be watched with keen interest by health authorities in other states.

REFERENCES

1. Editorial. *A.J.P.H.*, 37:573 (May), 1947.
2. *Sew. Works Engin.*, 20·237 (May), 1949.

Clearing House on Public Health Salary Information and Recruitment

IT PAYS TO ADVERTISE—THEY SAY

Look Magazine for June 7, describes what it calls the "new-style nurse recruiting program" for the North Carolina Good Health Association and the State Nurses' Association in coöperation with several other agencies. The basis of the program is an annual "Miss North Carolina Student Nurse" contest. With all the fanfare of a beauty contest, a free trip to Bermuda for the winner with a wardrobe donated by local merchants, high school girls who had never thought of nursing begin to consider its glamours. The 1947 result—the 1,000 student nurses needed, plus 100 for good measure. The article says "Health authorities believe the method is unique, but would be happy to see the other 47 states follow suit and develop the contest into a national promotion for a 'Miss U. S. Student Nurse.'" Any takers?

PICTURE OF UTAH'S PAY PLAN

The attached chart is a schematic presentation of a proposed compensation plan for the Utah State Health Department. It shows proposed salary scales for 38 grades of positions, ranging from a low of $1,560–$1,920 to $7,380–$9,000 annually. It provides for progression from minimum to maximum in 4 step increases of about 5 per cent each. It does not provide for a graded plan of meritorious pay increments, however, as recommended by the A.P.H.A.'s Subcommittee on Salary Study.

This plan was prepared by the Department's Personnel Officer, David B Brinton, who has since resigned to enter another business. His discussion of the plan and its rationale follows:

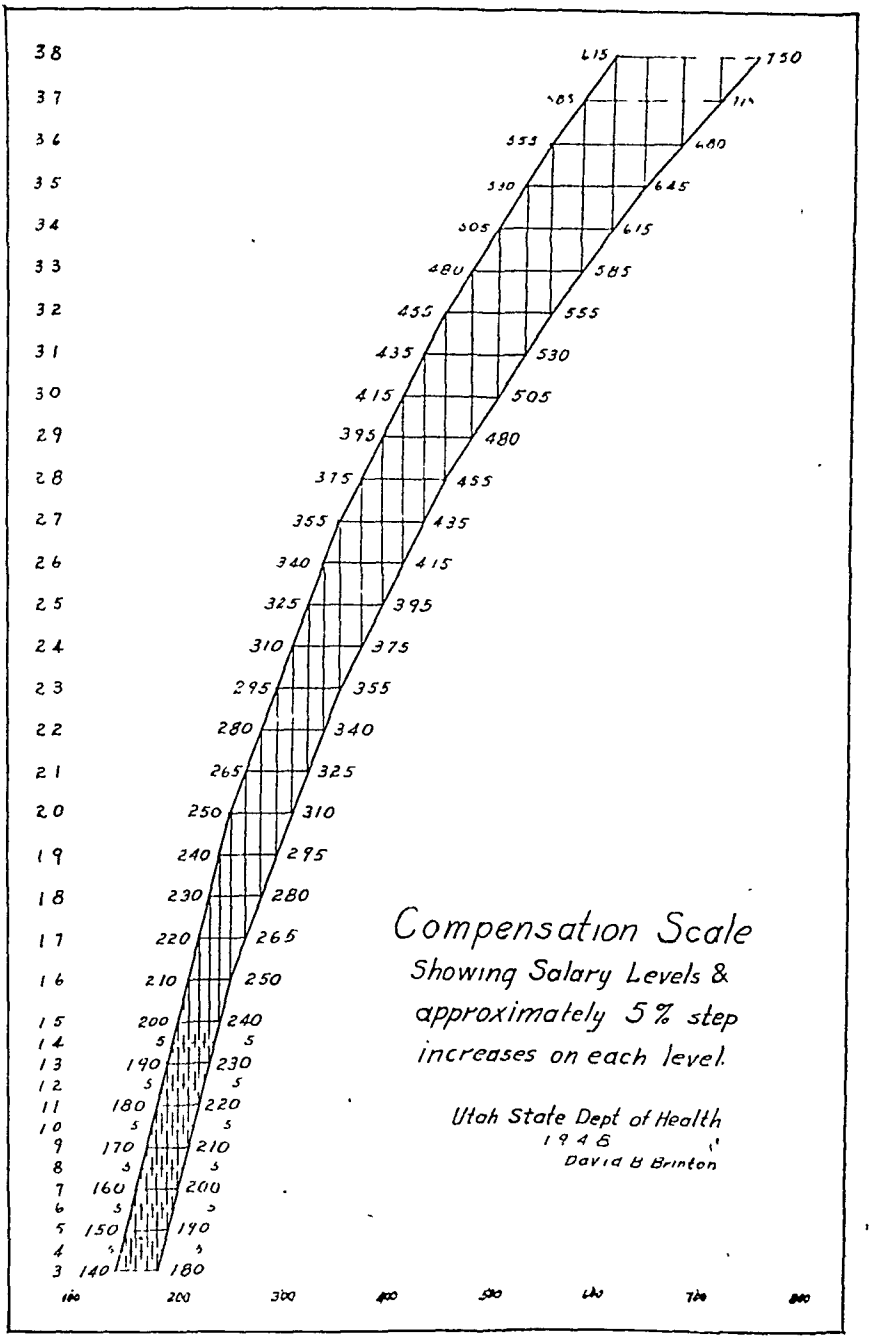
Good personnel administration requires a thorough knowledge and a careful analysis of a long list of job factors and working conditions. From the point of view of most employees, however, the prime consideration is salary, of which the number of dollars per pay period is only the beginning.

The salary level for a position determines in part the group of individuals who will apply. Those who are not well qualified will, in general, not even examine the specifications of a job having a salary well beyond their accustomed range; the reverse is true for the highly trained. The intricate relationships of training, experience, responsibility, etc., of the classification specification must be evaluated and reflected with a fine degree of accuracy in the compensation plan. The ever increasing technical competence needed for most public or civil service positions requires that qualifications be constantly reviewed and kept current. Raising qualifications, however, is difficult in the face of an inadequate or inconsistent compensation plan.

The attached compensation scale is proposed as a means of attaining uniformity and consistency among the various levels and the five consecutive steps in each level. The steps provide approximately 5 per cent increments at each step increase over the entire scale. The importance of treating all employees alike financially, regardless of the salary level, cannot be emphasized too strongly or too frequently in a discussion of the basic principles of personnel management.

In the operation of the plan, each classification is assigned to its appropriate level on the compensation scale. The plan then provides a minimum and a maximum and three intervening steps for each level. If it is desirable to have more than five steps, the line on the chart representing the maximum can be moved to the right; thus enlarging it to a six step plan without jeopardizing its consistency and uniformity.

The plan is designed to cover the full range of merit system or civil service positions that are likely to be found in governmental agencies below the federal level.



Credit Lines

WINGS FOR LABORATORY SAMPLES IN NEW MEXICO

Jefferson stated: "the legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all, or cannot do as well, for themselves in their separate and individual capacities." The public health laboratory of the New Mexico State Health Department, whose Director is Myrtle Greenfield, has recognized this truth. In coöperation with her colleagues, particularly the division of sanitary engineering, she has taken advantage of the fact that sparsely populated New Mexico is now well covered with air lines, to organize an air transport service for laboratory samples. Heretofore, the population in towns and cities was not large enough to support either district or branch state laboratories; nor was adequate transportation available for getting such samples to the central State Public Health Laboratory in Albuquerque.

District health officers and sanitarians now have such laboratory aids in their basic sanitation programs as standard plate counts, direct Breed counts, and phosphatase tests on milk samples, and swab counts on restaurant utensils. The major milk sheds of the state may submit milk samples, and restaurants in the larger towns may submit restaurant utensil samples to the Central Laboratory by commercial air lines at small expense. Samples are cooled when collected and packed in insulated containers with dry ice and carried as air freight at an average cost of less than $2 for 10 pounds. Even though some samples are shipped 300 miles, all reach the laboratory in less than 3 hours, while many arrive in less than 1 hour.

The field work is organized by personnel from the division of sanitary engineering through personal conferences and demonstrations. Frequently the organization for air flight transportation is preceded by stationing the Mobile Laboratory Unit in the area until the health officer, sanitarians, dairy operators, and restaurant owners learn the value of laboratory aid in the basic sanitation program.

Although this air service has been organized less than a year, it has already proved of great value and is an example of giving service to the public and of using available facilities to overcome great difficulties economically.

FOLLOWING A SURVEY

Readers of the *Journal* will remember that a study of Pennsylvania's public health situation has recently been made by the A.P.H.A.'s Committee on Administrative Practice at the request of the Governor and the Secretary of Health. (*A.J.P.H.* 38, 5:754, 1948; 39, 7:959, 1949.) Shortly after the study was submitted to the Governor, the Board of Directors of Public Charities Association of Pennsylvania instructed its public health division to proceed toward forming "a state-wide citizen's organization for improved public health services for Pennsylvania." It announced the survey would be the blueprint for the activities of this group.

As reported by the *P.C.A. Herald,* the board agreed that key requirements in Pennsylvania's public health are:

1. Improvement of state administration of health services.
2. Coördination of state, local public, and private health programs.

The health division was charged with working closely with other agencies, groups and laymen toward:

Improvement of administration of existing local health services.

Improvement of administration of those health services usually the responsibility of the state government.

Establishment of efficient and effective local health units.

Expansion of professional training facilities.

Coördination of hospital and health services.

Exploration of patterns for provision of medical care to greater proportions of the population.

This is an illustration of the kind of action that must follow a survey if it is to be more than an exercise in technique. The Pennsylvania Survey, like others, will bear fruit only to the extent that citizens make a reality of the recommendations that flow out of the findings.

CHILDREN WILL CHEW WINDOW SILLS

The Baltimore Health Department has been studying lead poisoning in children. Since 1930 it found 213 known cases of preventable lead poisoning, 76 of them fatal, in young children in Baltimore. But in 1948 there were 31 cases, more than in any previous year. The Health Department investigated; it found the 1948 cases, predominantly in the poorer economic sections of the city, resulted chiefly from chewing painted surfaces such as window sills or eating dried paint flakes cracked or chipped from indoor painted surfaces. In all but three instances laboratory tests of the chewed surfaces or paint chips proved the presence of lead. Indoor painting had been done with outdoor paint.

The department then distributed widely six suggestions for parents urging them to prevent small children from chewing painted surfaces and from eating dried paint flakes, using only lead-free paint for painting toys and indoor surfaces, and indicating the signs of lead poisoning.

It is another illustration of the many byways into which the public health worker finds himself in the pursuit of community health. What young public health student would have thought window sills were his province!

NEW MICROBIOLOGY INSTITUTE

Rutgers University, New Brunswick, N. J., is to have a $1,000,000 Institute of Microbiology directed by Dr. Selman A. Waksman. It will be financed by streptomycin royalties donated by Dr. Waksman. Thus streptomycin, like the widow's cruse of oil, will go on and on providing research provender. In 1948 Dr. Waksman shared an A.P.H.A. Lasker Award with Dr. Rene J. Dubos for studies on the microörganisms of the soil leading to the discovery of streptomycin and a host of other antibiotics. In 1947 he received the Passano Foundation Award of $5,000 for his original research in the field of antibiotics.

JOINT CANCER CONTROL PROGRAMS

In what the Canadian Department of National Health and Welfare calls "a move unprecedented in peacetime," federal health agencies of Canada and the United States are jointly sponsoring a campaign to tell their people the story of cancer research. The keystone of the campaign is a film tentatively entitled "The Scientist vs. Cancer," being made by the Canadian National Film Board, which will be distributed by the Public Health Service in the United States and by the Department of National Health and Welfare in Canada. Supplementary informational materials, ranging from study guides for teachers and discussion leaders, to booklets for students and lay groups will be produced by both sponsoring agencies. Among the purposes of the campaign is the stimulation in high school and college students of interest in cancer research, a field which like many others in science, suffers a shortage of qualified personnel.

Another instance of English speaking nations' coöperation in the cancer field is the exchange fellowships in cancer research offered by the American Cancer Society and the British Empire Cancer Campaign to British and American scientists for study in the United States and Great Britain respectively. (American Cancer Society, 47 Beaver St., New York, for details.)

Perhaps too, these activities will have another valuable by-product in expanding the areas of fruitful international coöperation.

"TIME" SUMMARIZES CANCER RESEARCH

Time, a weekly news magazine, gives some pages of each issue to medicine. The June 27, 1948, issue was devoted to cancer, with particular reference to Memorial Hospital and the Sloan-Kettering Institute in New York, headed by Cornelius P. Rhoads, M.D. It is a succinct summary, in remarkably understandable lay and colorful language, of cancer studies in progress and some of the hopeful outlooks. It is a good illustration of confiding in the public even on a highly technical problem about which no final solution has been achieved. Dr. Rhoads knows "that neither he nor his men nor anyone else in the world has yet found a cure for cancer," but, "it needn't be, not always."

BELATED MENTION

Lost in the overflowing basket of the Credit Lines editors for some time is *The Light on Tb in Arizona*, a two page leaflet put out jointly last fall by the Arizona Tuberculosis and Health Association and the State Health Department. It concentrates on, What Arizona Needs, and What You Can Do. It is significant that among the needs is a properly staffed public health unit for every county. It combines facts and motivation in an imaginative way and might serve to stimulate ideas for others with similar problems of getting a message across. Arizona Tuberculosis and Health Association, 623 N. 2nd St., Phoenix.

IN WORDS OF ONE SYLLABLE

Random signs indicate that public health workers sometimes abandon their "lingo" for basic English. *Stamford's Health*, the monthly organ of the Stamford (Conn.), City Health Department furnishes a recent illustration. In two pages it tells why Stamford needs a health center and how to get one. If you want to persuade your voters and taxpayers of the need for better housing facilities, this is a good illustration of how to give them the facts. Paul H. Brown, M.D., is the Health Commissioner.

HEALTH PROGRAMS OF UNIONS

The growth of trade union health and welfare plans gives point to a recent conference on union health programs conducted by the University of Illinois Institute of Labor and Industrial Relations (Urbana), and the Department of Social Welfare Administration in coöperation with the School of Medicine. Planned in response to a need voiced by organized labor, it was designed to "provide general information on voluntary prepayment medical plans." Proceedings are available from the institute. Especially valuable is an appendix including, among other items, a list of definitions, a list of unions including welfare plans in contract negotiations, and an analysis of state laws on voluntary medical and hospital plans.

Also published by the institute as a University of Illinois bulletin is *Health Progress in Collective Bargaining*, which is available from the Office of Publication, 358 Administration Building, Urbana.

INDUSTRY ADVERTISES CHEST X-RAYS

The makers of Gulistan carpets in Freehold, N. J., recently began, as ad-

vertisements in the local *Freehold Transcript,* "a series of informal discussions with our neighbors." They started the series with "It's time off—for sticking out our chests!" in which were given the facts about the coming annual mass x-ray survey. Everybody was urged to stick out his chest. The ad was illustrated with an effective line drawing. Credit Lines is indebted to Ralph Fisher, state consultant on community organization, of the New Jersey State Health Department for story and picture of this ad.

CANCER THE KILLER: IN A COMIC THRILLER

Cancer The Killer is distinctly in the comic book style—colorful, even gory pictures show the history of cancer diagnosis and treatment. To the comic book addict, this short publication ought to be a thriller. Illinois Department of Public Health, Springfield.

WORTH ACQUIRING

Roddy the Rat is the story of all the ways in which rats can carry disease as well as the way homes and other buildings can be ratproofed. It is written on the upper elementary grade school level, has good illustrations, and is particularly notable for explaining the reasons for things. An appendix includes descriptions of various types of rat control programs and instructions for the use of various poisons. Its slogan is Build Them Out; Starve Them Out; Kill Them Off.

Pineville High Meets the Challenge is the same kind of a story about hookworms and, like the bulletin above, was prepared with the coöperation of the Florida State Health Department. It exploits boys' interest in being a member of a winning football team to arouse initial interest in the hookworm and its devious path of infection.

Both pamphlets are available from Project in Applied Economics, University of Florida, Gainesville, Fla., *15 cents each,* 20 per cent discount on orders of 25 or more.

Nutrition for You has just been issued in a third edition, the first two having gone through four printings and 50,000 short of a million copies. Prepared by Walter Wilkins, M.D., Director of Nutrition Investigations and Services of the Florida State Health Department, and French Boyd, it is a set of food lessons designed to help each person to study and better his food habits. Prices furnished on request, Box 210, Jacksonville, Fla.

With this Dr. Wilkins sends also *Alaska's Health* of October, 1948, giving the result of the Alaska Nutrition Survey, and Mineral Composition of Florida Grown Vegatables, a 1947 *Bulletin of the University of Florida Agricultural Experiment Station,* of both of which "a few additional copies are available without cost."

Butch Looks to You is the second of the "Butch" safety pamphlets issued by the U. S. Department of Labor. Intended for shop foremen and supervisors, it outlines their responsibility for safety, not merely the technical details of guarding machines, keeping work spaces cleared, and other plant housekeeping, but the more elusive art of knowing what makes each person click, what are his emotional hazards, etc. Written in simple language and illustrated. U. S. Gov. Ptg. Office, Washington 25, D. C., *10 cents.*

ANNUAL REPORTS

The 8 year old Nutrition Foundation recently published its *1948 Annual Report* which summarizes not only its status and grants-in-aid, but is a summary as well of current trends in nutrition research. In the 6 years ending June 30, 1948, the foundation made grants of more than a million and a half

dollars in behalf of nutrition research. Of this amount nearly one-fourth was devoted to public health problems in nutrition and an eighth to education and professional training. The list of published research papers arising out of the grants is in itself a current bibliography on nutrition.

The foundation is supported by a group of food industries. Its scientific director is Charles Glen King. Its offices are in the Chrysler Building, New York City.

Rensselaer County (N. Y.), the first New York County to organize an overall county health department under the state's 1946 law providing additional state aid to county health departments, has published its first annual report, *Health in Rensselaer County*. For those who are still hesitating whether to organize a county or district health unit, perhaps its most significant sentence is "The success of the Department has demonstrated the value of performing direct health services through a well organized efficient local health unit covering a population group large enough to make the employment of well trained personnel economically feasible."

INDUSTRY IN PUBLIC HEALTH

An increasing interest in public health is being shown by industry as indicated by publication of periodicals. The latest to come to the attention of this department is the mimeographed monthly *The Conveyor* published by the National Canners Association Research Laboratories, Western Branch, San Francisco 5. Industrial sanitation and safety is its theme.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Studies in Air Hygiene—*By R. B. Bourdillon, O. M. Lidwell and J. E. Lovelock, with W. C. Cawston, L. Colebrook, F. P. Ellis, M. van den Ende, R. E. Glover, A. M. MacFarlan, A. A. Miles, W. F. Raymond, E. Schuster and J. C. Thomas. Medical Research Council, Special Report Series No. 262. London: His Majesty's Stationery Office,* 1948, 356 pp. 7s 6d.

This volume is a technical symposium presenting in detail the extensive studies on air hygiene conducted in Great Britain through the later war years by a research team under the auspices of the Medical Research Council. The major emphasis has been directed toward the development and evaluation of quantitative methods for studying the properties of aerial disinfectants and for making basic observations on bacterial contamination in a wide variety of occupied spaces. A limited number of animal studies are also included.

The slit sampler has been shown to be a practical and versatile instrument for counting bacterial particles in air. It has the great asset over other sampling devices of measuring the rapid and often extreme fluctuations in aerial contamination that occur in occupied spaces. Furthermore, the rate of decline in bacterial counts following the introduction of disinfectants can be determined with accuracy in short time intervals. This instrument has not received the attention in the United States that it deserves.

The use of the logarithmic decay constant as the expression for the rate of removal of bacteria from air has been adopted as a standard procedure. This rate, as Wells originally pointed out, can be expressed in the terms of equivalent air changes per hour. Since the constants for measuring removal of bacteria by ventilation or sedimentation and killing by disinfectants are additive, a quantitative measure of the three effects is possible.

The capacity of a wide variety of chemicals, ultra-violet radiation, heat and filtration in killing or removing air-borne bacteria have been measured and the limiting conditions of their usefulness have been studied. There is no dearth of bactericidal agents, but many practical problems must be solved before large scale applications are feasible.

Extensive field observations of bacterial contamination of the air were conducted in operating rooms, homes, factories, air-raid shelters, and war ships under active service conditions. The relation of bacterial counts to the degree of human activity has been described in detail. The problem of achieving a substantial reduction in air-borne bacteria in the face of constant introduction of new bacteria has been clearly presented.

This report represents a major landmark in the development and application of quantitative methods in air hygiene. While the main body of the work will be of primary interest to students and research workers in the field, the final section presents a clear and succinct summary of the problem that will be of general interest to all workers in public health.

ALEXANDER D. LANGMUIR

Mineral Nutrition of Plants and Animals—*By Frank A. Gilbert. Norman, Okla.: University of Oklahoma Press,* 1948. 131 pp. Price, $2.75.

This book reviews the more impor-

tant papers in the literature dealing with mineral nutrition of plants at a level which makes it interesting and useful both to those who would like to be generally informed in the field and to those who might like a starting place from which to delve deeper into the subject. The book is of interest also to those who are concerned about soil conservation and its far-reaching economic effects, for the author gives some attention to this aspect of the subject too.

The book presents what is known concerning mineral requirements for plants and animals. It describes what happens to plants when the soil in which they are grown is deficient in minerals and, in turn, what happens to animals when they are raised on such plants.

The importance of more attention to the mineral content of soil is well established. While further knowledge is accumulating it is also important to apply the knowledge we now have to useful purposes. This book should be helpful in stimulating such action.

A bibliography of over three hundred references is included.

OTTO A. BESSEY

The Unexpected Gift—*By Dorothy Stephens Laird. Illustrated by Harrison Covington. University of Florida Project in Applied Economics, College of Education, Gainesville,* 1948. Price, $0.35 single copy, 20% discount for 25 or more copies.

This booklet is one of a series of science readers for the junior high school pupils. The material—presented in story form with nine pen and ink illustrations—should stimulate interest of pupils in an adequate diet and call attention to the role of the lunchroom in providing good nutrition as a part of the total school program.

The philosophy regarding the lunchroom program and the choice of nutrition teaching material is excellent. To present all of this in story form is an almost impossible task, and there are certain places where basic information is obviously tacked on to the framework of the story, but the earnest reader is rewarded by the realization that all essential information does get presented before the climax of the story is reached.

There is a story, complete with a pet dog, a wild cat, a barbecue, and a hero. It would be interesting to know how this presentation of rural Florida life would be received in New Mexico, where there are no swamps and alligators, but as an example of local material developed by collaboration of many interested persons, the book could well serve as an example for emulation by any state desiring truly local teaching material.

The type is clear. There is much conversation to add to interest and readability. It should prove interesting, usable, and instructive for children of junior high school age, and should help teachers who are attempting to serve their communities by teaching basic facts concerning food and nutrition.

MARGARET C. MOORE

American Standard Plumbing Code. *Sponsors: American Public Health Association and American Society of Mechanical Engineers. New York: Published by American Society of Mechanical Engineers,* 1949. 77 pp.

The A.S.M.E. has published *The American Standard Plumbing Code, A 40.7–1949,* representing the work of a committee formed in 1928.

The organizations, their subcommittees, and consultants from industry and government are to be commended. Many cities and states need guidance when they come to consider plumbing regulations.

The committee recognized that plumbing is not a static subject by appointing a Standing Committee to consider the results of present and future research on controversial plumbing subjects.

The Standards include the most complete coverage of the methods of protecting water distribution systems against backflow and back-siphonage of any recommended code thus far developed.

Despite the efforts of the committee to define loosely used terms, there are some ambiguities which may cause a problem in enforcement. The reviewer believes that a national code should have clearly stated in the text a statement of the basic principles governing plumbing. This point is not adequately covered.

The reviewer raises the question as to why a 3" stack was limited to a capacity of two bathrooms, when six bathrooms have been safely discharged (with proper revents) to a 3" stack for the past fifteen years. Economy of installation is the last consideration in health and safety, but it should not be disregarded when it also can be accomplished.

Any community adopting this code will have sound regulations not as restrictive and costly as some, and if any errors have been made they are on the side of safety and sanitation.

L. GLEN SHIELDS

American Foundations and Their Fields VI—*Edited by Wilmer Shields Rich and Neva R. Deardorff, Ph.D. New York: Raymond Rich Associates,* 1948, 265 pp. Price, $6.00.

This volume in its various editions may properly be regarded as the standard reference series on American foundations, dating back, as it does, to 1931 when the series began under the auspices of the 20th Century Fund.

The report points out that the number of true foundations has markedly increased from less than 200 a decade ago to more than 800 today. The present volume deals with 889 foundations which are divided into five groups, namely, grant-making foundations, community trusts, foundations granting fellowships and awards, operating foundations, and finally, foundations releasing little or no information.

This volume represents an indispensable aid for persons who have dealings with foundations. The authors and Raymond Rich Associates are to be congratulated on the thoroughness of the job and the format.

Again it should be said that the privilege of tax exemption which is afforded these foundations demands that they give financial and program accounting to the public. This report highlights the fact that about half the foundations still are secretive about this information.

REGINALD M. ATWATER

Film and Education—*A Symposium on the Role of the Film in the Field of Education—Edited by Godfrey M. Elliott. New York: Philosophical Library,* 1948. 575 pp. Price, $7.50.

It has taken many years for educators to change their attitude toward motion pictures and accept the film as an educational aid. In fact, full acceptance did not come until after World War II and the government's demonstration of the great value and possibilities of the training film.

This volume with its 37 chapters, each written by an authority in the educational film field, examines in detail the growing importance of the motion picture in school and community life. In the first of the five parts into which the book is divided, the Nature of the Educational Film is considered. Part Two traces the growth of the educational film use in our teaching institutions and presents an up-to-date survey of the non-theatrical film in all of its applications for the school and for community groups. In Part Three, the Educational Film Outside the Classroom is adequately dealt with. Parts Four and Five deal with the Educational Film Abroad and with Administrative Problems and Practices.

While there is naturally some unevenness in reader interest, unavoidable in a symposium such as this, through wise advance planning, the editor has in the main succeeded in avoiding the pitfalls of duplication.

Although the major emphasis is upon application of the film rather than upon techniques of production or usage, this volume should be read with special care by documentary film producers, for throughout there are valuable suggestions for the production of films and constructive criticism of current methods, particularly in the teaching areas.

Teachers, preachers, and health, medical, industrial, business and community leaders will all find stimulation and practical suggestions in the various chapters of the book. It should be a must on their reference library shelves.

KENNETH D. WIDDEMER

Manual of Clinical Laboratory Methods—*By Opal E. Hepler, Ph.D., M.D. (4th ed.) Springfield, Ill.: Thomas,* 1949. 395 pp. Price, $8.50.

Three previous editions of this work have appeared in planograph form, the present edition being in book form printed on large 8" x 11" pages with many tables, photographs, sketches, and 8 full page color plates.

Selected procedures covering the entire range of clinical laboratory work are presented in precise outline form, step by step directions, in numbered order, in cook-book style. In most instances only the one method which the author regards most highly is included for each determination. Each method is preceded by a brief and concise discussion of the principles involved, followed by a general consideration of its usefulness and the precautions necessary to avoid errors in performance or interpretation. While the manual is not intended to be a textbook on clinical pathology, it does not fall into the error of some manuals in entirely avoiding all mention of the clinical significance of various findings. Sections on interpretation follow each method, and several extensive tables on differential diagnosis are included for the purpose of stimulating the interest of the technician.

Such recent developments are covered as methods for the assay of penicillin and streptomycin, sensitivity tests for these drugs, methods for the determination of Rh and Hr antibodies and blocking antibodies, and titration of blood plasma for ascorbic acid and vitamin A. The chapter on mycology is outlined from the recent *Manual of Clinical Mycology* by Conant and associates, and illustrated by some particularly good photographs. Chapters on basal metabolism and electrocardiography increase the usefulness of the text.

To the hospital laboratory technician who desires and needs exact directions for each examination, the *Manual* should prove invaluable. Its value to students and research workers would be enhanced if source references for the various methods and interpretative conclusions were given. It can be recommended to all clinical laboratories.

EDMUND K. KLINE

Backgrounds of Social Medicine—*Papers Presented at a Round Table at the 1947 Annual Conference of the Milbank Memorial Fund. New York: Milbank Memorial Fund,* 1949. 202 pp. Price, $1.00.

This is a valuable book which will prove useful to all students of public health and social medicine. It includes a historical survey of the concept of social medicine by George Rosen, a discussion of statistical approaches by Lowell Reed, and reviews of our present knowledge of the relation of socio-environmental factors to mortality by Dorothy Wiehl, to illness by Jean Downes, to physical impairments by Rollo Britten, and to mental hygiene by R. H. Felix and R. V. Bowers. The re-

lation of the industrial and occupational environment to health is discussed by Ruth Puffer, and the role of nutrition by H. D. Kruse. In addition, there is a very stimulating discussion of the papers by other participants in the conference.

Perhaps the book's greatest value lies in the fact that the authors of the various papers have not only summarized present data but have also indicated the gaps in our knowledge, and have in many instances suggested steps which might be taken to fill those gaps. The data presented and the suggestions made by the authors provide numerous points of departure for research in social medicine. It is evident that while much general knowledge exists today on the role of social factors in health and illness, there has been little success in isolating specific factors and determining their relative importance. New types of intensive investigations are clearly needed.

One criticism which may be made is the rather narrow definition of social medicine implicit in the scope of papers presented. In the reviewer's opinion the field of social medicine comprises all interrelationships of medicine and society, and includes therefore the social organization of medicine as well as the social epidemiology of health and disease. MILTON TERRIS

Alcohol and Human Affairs—*By W. B. Spalding and J. R. Montague. Yonkers, N. Y.: World Book Co.,* 1949. 248 pp. Price, $1.64.

The senior author, Dean of the College of Education at the University of Illinois, and the junior author, a physician and member of the educational advisory committee of the Oregon State Liquor Commission, one of the more progressive states, which recognizes problem drinking as a medical complex and has established a sound medical and educational program to cope with it, has undertaken a challenging and difficult job in the preparation of this book for teen age students.

While they attempt to hew to the middle of the road, to present the many aspects of "the drinking problem" (and particularly that ubiquitously-used but ill-defined term, "excessive drinking"), they manifest many biases. It is unfortunate that a complex problem such as this, too long permeated with emotionality and stereotype thinking, is still presented in such value terms as *bad* and *evil*. Despite this dereliction, the authors give an accurate though simplified account of the physiology of alcohol in the human body, its normal and pathological effects, drinking patterns in American society, and some pertinent facts about the liquor industry and its importance in modern society. One of the weakest and, in fact, misleading sections of the book, deals with the social costs of drinking evaluated in terms of disorganization, divorce, delinquency, crime, and accidents. In their presentation the authors help to perpetuate the stereotypes traditionally put forth by vested interests groups engaged in the prohibition argument.

Against these limitations the authors take a forward looking attitude toward the modern medical treatment of the alcoholic, describing various forms of therapy, the Alcoholics Anonymous program, and the growing interests on the part of state and local governments to set up adequate treatment facilities.

A postscript section of the book is, in the traditional educational fashion, devoted to Tobacco, Narcotics and Other Drugs. A small but usable bibliography and suggested agencies furnishing publications on the problems of alcohol are included. JOSEPH HIRSH

Current Therapy 1949—*By Howard F. Conn, M.D., Editor. Philadelphia: Saunders,* 1949. 672 pp. Price, $10.00.

The informed layman who reads his newspaper must be impressed with the rapidity with which new drugs and therapeutic procedures have been introduced into the practice of medicine during the last two decades. The practising physician who must keep abreast of many more of these developments through his professional journals can find it no easy task to maintain the accelerated pace with which they are reported. In this attractive publication he will find his task materially lightened by an imposing number of eminent medical authorities who describe in detail their own favored methods of treating the majority of diseases that will be encountered in the practice of medicine.

The usefulness of this reference work is enhanced by the readability of the subject matter, the clarity of type, and a good index. The tendency to include a brief and often insufficient discussion of disease and its diagnosis that is characteristic of some textbooks on therapy has been avoided. The reader of this book is expected to be familiar with the disease in question or to consult other texts for a more complete description of it. Thus the editors have been enabled to devote sufficient space to the subject of therapy without creating an unwieldy volume.

In a number of instances alternative methods of treatment of a disease are given by different authors and the choice of method is left to the reader. Both specific and symptomatic therapy are adequately covered. The book's value as a current source of information is emphasized by the references made in it to the use of aureomycin, chlormycetin and Vitamin B_{12}.

The dating of the title creates the impression that this book will be issued each year, or perhaps at less frequent intervals in order to keep it up to date. In that case, it might have been wiser to have issued a loose-leaf volume in order to avoid the expense of buying frequent editions. Whether this method is adopted in the future or a yearly volume is issued, this work is a welcome addition to the literature on therapy.

HENRY B. MAKOVER

Happy Days with Our Friends—*By Elizabeth Montgomery, W. W. Bauer, M.D., and William S. Gray, Reading Director. Teacher's Edition.* 95 pp. plus Guidebook of 80 pp. Price, $.96.

You—*By Dorothy Baruch, Elizabeth Montgomery, and W. W. Bauer, M.D. Teacher's Edition.* 288 pp. plus Guidebook of 127 pp. Price, $1.48.

You and Others—*By Helen Shacter and W. W. Bauer, M.D. Pupils' Edition.* 288 pp. Price, $1.56. *Chicago: Scott, Foresman and Co.,* 1948.

The broader concept of health has been incorporated into the text material of these three books for grades one, five, and six, respectively, a part of the new Health and Personal Development Series. A well planned health program is presented in each book.

It is significant that a considerable amount of material, especially in Books 1 and 6, is devoted to the usually omitted health concepts in the areas of mental and social health, personal development, and likenesses and differences in physical and emotional behavior. Experts on each age level have prepared and illustrated the texts. Consequently, the needs and abilities of children have been determining factors in the selection and grade placement of the learning experiences.

The approach is unique in that the content is developed by stories of real experiences of boys and girls. Typical problems and experiences of children are presented by colorful pictures and easy-to-read text. Modern concepts of motivation are incorporated, such as questions to stimulate thinking and suggested activities (although not always functional). This reviewer regrets the

omission of any reference to reproduction, a knowledge of which is so essential for the development of a well adjusted individual.

The excellent guidebooks in the Teacher's Edition give detailed lesson plans which point up the health values inherent in the text to guide group discussion. Modern points of view of health teaching and the needs and characteristics of the particular age group are incorporated. "Implications for Parent-Teacher Cooperation" should aid in the improvement of pupil health. Selected bibliographies and films are listed.

One of the best criteria of textbooks is the request of pupils to reread a book. Through actual use in the classroom these books meet this critical test.

EDITH M. LINDSAY

The Child in Health and Disease —*By Clifford G. Grulee and R. Cannon Eley. Baltimore: Williams & Wilkins,* 1948. 1006 pp. Price, $12.00.

This book, the latest addition to the textbooks of diseases of children, sets out to correct what the editors decry as "the attitude of indifference . . . whenever the practical side of pediatrics comes to the fore." Production of the volume was attended with a series of unexpected difficulties related to the war, delaying publication several years and necessitating "readjustment and rewriting" of the manuscripts.

The long list of contributors includes many outstanding workers in their respective fields but it is perhaps not unexpected that the results are uneven. Some sections are good and some not all that one might wish for. Infectious diseases receive considerable attention but one wonders at the separation of "Communicable Diseases" from "Acute Infections." Such diseases as streptococcal sore throat and malaria are certainly as communicable as meningitis or vaccinia. Furthermore, scarlet fever, discussed separately under "Communicable Diseases" is classified properly as one form of streptococcosis under "Acute Infections."

Treatment advised in the various chapters usually follows the predilections of the author. Some of the advice is surprising, such as the injunction to treat the common cold promptly with sulfadiazine. It is doubtful whether many would agree that a cold is sufficient indication for sulfonamide therapy.

This reviewer was puzzled by the difficulty in finding the discussion of treatment of common diarrheal disorders which are so important a problem in childhood. They are not listed under diarrhea in the index but are included under nutritional disorders. There is a chapter on dysentery but, in view of recent epidemiological data here and abroad, it seems that a more extensive presentation of Salmonellosis would have been in order.

Many tables are included in the text and an innovation is a listing of commonly used proprietary foods, giving their brand names and data on composition just as supplied by the manufacturers. Interpretation would have been easier had the figures been reduced to common units or a common base. It is not easy, furthermore, to understand why one brand of powdered half-skimmed milk is included under "Complete Foods," and another, of almost identical composition, under "Milk."

Heavily coated paper stock and lightface type make reading rather difficult and a large number of annoying misprints are present, something to which it seems one must grow accustomed when a first edition of a new work appears. In general, the many illustrations are well chosen and clearly reproduced. MYRON E. WEGMAN

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AMERICAN ECONOMIC SECURITY. Special Issue on Your Community and The Nation's Health Progress. Proceedings of Fourth National Conference on Social Security. Washington: Chamber of Commerce, 1949. 98 pp. Price, $1.00.

AMERICA'S HEALTH, A REPORT TO THE NATION. The National Health Assembly. New York: Harper, 1949. 388 pp. Price, $4.50.

BACTERIAL AND VIRUS DISEASES. H. J. Parish. Baltimore: Williams & Wilkins, 1948. 157 pp. Price, $2.75.

A BOY GROWS UP. Harry C. McKown, (2nd ed.). New York: McGraw-Hill, 1949. 312 pp. Price, $2.40.

BUILDING SOUND PUBLIC RELATIONS, 1949. New York: National Organization for Public Health Nursing, 1949. 94 pp. Price, $1.25.

"CONFERENCE TECHNIQUES"—SECTION TWO OF "HOSPITAL PERSONNEL ADMINISTRATION." Chicago: American Hospital Assn., 1949. 142 pp. Price, $1.50 to members; $2.25 to non-members.

THE COMPLEAT PEDIATRICIAN. W. C. Davison (6th ed.). Durham, N. C.: Duke University Press, 1949. 256 pp. Price, $4.75.

CONSTRUCTIVE USES OF ATOMIC ENERGY. Edited by S. C. Rothmann. New York: Harper, 1949. 224 pp. Price, $3.00.

DIRECTORY OF THE AMERICAN POLITICAL SCIENCE ASSOCIATION, 1948. Menasha, Wis.: George Banta, 1949. 360 pp. Price, Members: cloth bound $3.00; paper bound $2.00. Non-members: cloth bound $4.00; paper bound $3.00.

DESIGN AND CONSTRUCTION OF GENERAL HOSPITALS. Chicago: Modern Hospital Publishing Co. 107 pp.

EPILEPSY AND CONVULSIVE DISORDERS IN CHILDREN. Edward M. Bridge. New York: McGraw-Hill, 1949. 636 pp. Price, $8.50.

ESSENTIALS OF A HOSPITAL DEPARTMENT OF PHYSICAL THERAPY. Chicago: American Hospital Assn., 1949. 37 pp. Price, $1.00 to members; $1.50 to non-members.

FIGHTING SPOTTED FEVER IN THE ROCKIES. Esther Gaskins Price. Helena, Mont.: Naegele Printing Co., 1948. 248 pp. Price, $4.00.

HOW TO ORGANIZE A HEALTH COOPERATIVE. Russell K. Lewis. St. Paul, Minn.: Health Center Services Committee, 1949. 126 pp. Price, $1.25.

INDUSTRIAL TOXICOLOGY. Alice Hamilton and Harriet L. Hardy (2nd ed.). New York: Hoeber, 1949. 492 pp. Price, $7.50.

INTRODUCTION TO RADIOCHEMISTRY. Gerhart Friedlander and Joseph Kennedy. New York: Wiley, 1949. 398 pp. Price, $5.00.

INTERNATIONAL DIGEST OF HEALTH LEGISLATION. World Health Organization. New York: Columbia University Press, 1948. 144 pp.

LIMBO TOWER. William Lindsay Gresham. New York: Rinehart, 1949. 275 pp. Price, $3.00.

THE ORGANIZATION AND ADMINISTRATION OF PHYSICAL EDUCATION. Edward F. Voltmer and Arthur A. Esslinger. New York: Appleton-Century-Crofts, 1949. 410 pp. Price, $3.50.

PRENATAL CARE. Federal Security Agency, Children's Bureau. Washington: Gov. Ptg. Office, 1949. 70 pp. Price, $.15.

PRINCIPLES OF SANITATION APPLICABLE TO THE CONSTRUCTION OF NEW VESSELS. Washington: Public Health Service, Division of Sanitation. 101 pp.

PUBLIC HEALTH NURSING IN LOS ANGELES COUNTY VOL. I. Los Angeles: Welfare Council of Metropolitan Los Angeles, 1949. 115 pp. Price, $2.00.

SOCIAL BIOLOGY AND WELFARE. Sybil Neville-Rolfe. New York: Macmillan, 1949. 408 pp. Price, $4.50.

STAFFING THE GENERAL HOSPITAL—25 TO 100 BEDS. Margaret K. Schafter. Washington: Public Health Service, Division of Medical and Hospital Resources, 1949. 20 pp.

STATE LAWS TO PROTECT FAMILY HEALTH. A Summary of State Legislation Requiring Premarital and Prenatal Examinations for Venereal Diseases. (3rd ed.). 1935–1949. New York: American Social Hygiene Association, 1949. 30 pp. Price, $.30.

THE VALUE OF HORMONES IN GENETAL PRACTICE. W. N. Kemp. Minneapolis, Minn.: Burgess Publishing, 1949. 115 pp.

THE WORK OF THE SANITARY ENGINEER. L. B. Escritt and Sidney F. Rich. New York: EDWARD W. SWEETMAN, 1949. 716 pp. Price, $12.50.

WOMEN IN MARITAL CONFLICT. A CASEWORK STUDY. Florence Hollis. New York: Family Service Assn. of America, 1949. 223 pp. Price, $3.50.

REPORTS RECEIVED

CALIFORNIA PUBLIC HEALTH REPORT 1947-1948. July 1, 1947 to June 10, 1948. Statistical Supplement. Los Angeles: State Department of Public Health 163 pp.

CHILDREN'S FUND OF MICHIGAN. 20th Annual Report 1948–1949. Detroit, Mich.: Children's Fund of Michigan, 1949. 20 pp.

CITIZEN SERVICE IN HEALTH AND WELFARE. 76th Annual Report, 1948. New York: State Charities Aid Association.

DADE COUNTY HEALTH UNIT 1948. Miami, Fla.: Department of Health. 57 pp.

DEVELOPMENT OF SERVICES FOR CRIPPLED CHILDREN IN MARYLAND. 1936–1948. Baltimore: State Department of Health. 34 pp.

DEPARTMENT OF HEALTH 74TH ANNUAL REPORT 1948. Evanston, Ill.: Department of Health. 44 pp.

DWELLING CONDITIONS IN THE TWO PRINCIPAL BLIGHTED AREAS. Miami, Fla.: Planning Board, the Slum Clearance Committee, Dade County Health Department. 68 pp.

THE FIRST FORTY YEARS. 1948 Annual Report. New York: National Society for the Prevention of Blindness. 14 pp.

HEALTH REFERENCE BOOK, 1948. Ottawa, Canada: Dominion of Statistics, 1949. 117 pp.

INSTITUTE OF INTER-AMERICAN AFFAIRS. Annual Report of the Training Program of the Health and Sanitation Division. January 1, 1948–December 31, 1948. Washington: Institute of Inter-American Affairs.

NEW KNOWLEDGE THROUGH SCIENTIFIC RESEARCH IN MELLON INSTITUTE 1948–1949. The 36th Annual Report. Pittsburgh, Pa.: Andrew W. Mellon Institute, 1949. 39 pp.

THE NATIONAL CONFERENCE ON UNDERGRADUATE PROFESSIONAL PREPARATION IN PHYSICAL EDUCATION, HEALTH EDUCATION AND RECREATION. Held at Jackson's Mill, Weston, W. Va., May 16–27, 1948. Chicago: Athletic Institute, 1948. 40 pp. Price, $1.00.

NEW ROCHELLE, NEW YORK. Annual Report 1948 of the Department of Public Health.

NEW YORK TUBERCULOSIS AND HEALTH ASSOCIATION, INC. Annual Report. April 1948–March 1949. New York: Tuberculosis and Health Assn., 1949.

OUR BABIES ARE CRYING. 1948 Annual Report. Augusta, Ga.: Richmond County Health Department. 28 pp.

PROCEEDINGS OF THE 18TH ANNUAL CONFERENCE FOR VETERINARIANS AND DIAMOND JUBILEE CELEBRATION. JUNE 15–17, 1949. Columbus, Ohio: Ohio State University, College of Veterinary Medicine, 1949. 113 pp.

PROCEEDINGS OF THE FIRST NATIONAL CONFERENCE OF UNESCO. Philadelphia, Pa., March 24–26, 1947. Washington: National Commission for UNESCO. 202 pp.

PROVIDING ADEQUATE HEALTH SERVICE TO NEGROES. 12 pp. HOW A NATIONAL HEALTH PROGRAM WOULD SERVE THE SOUTH. 24 pp. RESTRICTIONS ON FREE ENTERPRISE IN MEDICINE. 23 pp. New York: Committee on Research in Medical Economics, 1949.

VITAL STATISTICS ON THE JEWISH POPULATION IN THE U. S. ZONE OF GERMANY, 1948. Munich: Medical Department AJDC-OSE-CC. 31 pp.

WELFARE COUNCIL OF METROPOLITAN CHICAGO. Annual Report of the Health Division 1948-1949.

WESTERN BRANCH—AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Report 1948. 114 pp.

Preliminary Program of the Scientific Sessions of the 77th Annual Meeting of the American Public Health Association and Meetings of Related Organizations, New York, N. Y., October 24–28, 1949.

All meetings will be held in the Hotels Statler and New Yorker except as otherwise noted in the program.

The Registration Desk will be in the Hotel Statler and will open for the registration of delegates at 1:00 P.M. on Monday, October 24, at which time final programs will be distributed.

Delegates are reminded that no badges nor other registration credentials are required for meetings scheduled for Monday morning.

MONDAY MEETINGS

AMERICAN ASSOCIATION OF REGISTRATION EXECUTIVES

Morning and Afternoon Sessions—Parlor D, Hotel New Yorker

ASSOCIATION OF BUSINESS MANAGEMENT IN PUBLIC HEALTH

Morning and Afternoon Sessions—Parlor G, Hotel New Yorker

CONFERENCE OF HEALTH MUSEUM EXECUTIVES

Morning and Afternoon Sessions—Room 112, Hotel Statler

CONFERENCE OF STATE AND PROVINCIAL PUBLIC HEALTH LABORATORY DIRECTORS

Morning and Afternoon Sessions—Grand Ballroom, Hotel New Yorker

CONFERENCE OF STATE DIRECTORS OF HEALTH EDUCATION

Morning and Afternoon Sessions—Parlor F, Hotel Statler

PUBLIC HEALTH VETERINARIANS

Morning, Afternoon, Dinner and Evening Sessions—Room 127, Hotel Statler

Education of the Public Health Veterinarian. RAYMOND FAGAN, D.V.M.

Evaluation of Veterinary Public Health Program. JAMES H. STEELE, D.V.M.

Problems of Radio-Biology in Veterinary Public Health. (Speaker to be announced.)

A State Meat Inspection Program. MARTIN D. BAUM, D.V.M

MONDAY MEETINGS

PUBLIC HEALTH VETERINARIANS (Cont.)

International Veterinary Public Health Problems. (Speaker to be announced.)

A Report on Public Health Problems Discussed at the Fourteenth International Veterinary Congress. WILLIAM T. S. THORP, D.V.M.

Rabies Seminar. ALEXANDER ZEISSIG, D.V.M.

MONDAY, 9:30 A.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

First Session—North Ballroom, Hotel New Yorker

Presiding: CYRUS H. MAXWELL, M.D., President.

Hearing Conservation Program. DONALD R. CAZIARC.

Vision Program of Philadelphia Schools. RALPH C. LUCIANO, M.D.

Study of School Absences. JOSEPH I. LINDE, M.D.

A Study of 8,000 Children with the Wetzel Grid. ERNEST COUTURE, M.D.

A School Medical Advisory Committee Which Works. HENRY W. KAESSLER, M.D.

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

First Session—Panel Room, Hotel New Yorker

Presiding: MORTON S. HILBERT, *Chairman.*

Emergency Sanitation Programs and Disaster Action for Municipal Public Health Engineers. (Speaker to be announced.)

Discussant: WILLIAM R. HARDY.

A Community Sanitation Program. ABEL WOLMAN, DR. ENG..

PUBLIC HEALTH CANCER ASSOCIATION

First Session—Penn Top, Part 1, Hotel Statler

A Report on the Cancer Diagnostic Test Program at the University of Washington. STUART W. LIPPINCOTT, M.D.

Discussant: LOUIS HERLY, M.D.

The Maryland Demonstration Project on Cancer Morbidity Reporting and Nursing Services. W. ROSS CAMERON, M.D., AND MARY SEARS, R.N.

Discussant: LESTER BRESLOW, M.D.

MONDAY, 9:30 A.M.

PUBLIC HEALTH CANCER ASSOCIATION (Cont.)

Epidemio-Statistical "Studies of Cancer" (Progress Report). RUTH R. PUFFER, DR.P.H.

Discussant: MORTON L. LEVIN, M.D.

Breast Cancer Problem in Cancer Control. CUSHMAN HAAGENSEN, M.D.

Discussant: IRA NATHANSON, M.D.

MONDAY, 12:30 P.M.

AMERICAN PUBLIC HEALTH ASSOCIATION GOVERNING COUNCIL

Luncheon and Afternoon Meeting—Salle Moderne, Hotel Statler

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS

Luncheon Session—Panel Room, Hotel New Yorker

Presiding: MORTON S. HILBERT, *Chairman.*

Business meeting.

CONFERENCE OF PROFESSORS OF PREVENTIVE MEDICINE

Luncheon and Afternoon Sessions—Parlor 1, Hotel Statler

MONDAY, 2:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Second Session—North Ballroom, Hotel New Yorker

Presiding: CHARLES KEENE, M.D.

THE PARTICIPATION OF SCHOOL HEALTH PERSONNEL IN THE SCHOOL HEALTH EDUCATION PROGRAM

Panel Discussion

Participants:

The Physician. MILDRED E. DOSTER, M.D.

The Health Educator. W. W. PATTY, PH.D.

The Science Instructor. HUBERT EVANS, PH.D.

The Nurse. MARY ELLA CHAYER, R.N.

MONDAY, 2:30 P.M.

CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS AND CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—Panel Room, Hotel New Yorker

Presiding: W. W. TOWNE AND MORTON S. HILBERT.

Administration of Federal Stream Pollution Bill. CARL E. SCHWOB.

Report of Joint Committee on Rural Sanitation. WILLIAM H. CARY, JR., C.E.

Federal Health Bill in Relation to Sanitation Programs. (Speaker to be announced.)

Discussion of Administrative Problems, State and Local. (Speaker to be announced.)

Discussion of Need for Joint Committee on Sanitation Standards for Circuses, Carnivals, and Tent Shows. (Speaker to be announced.)

PUBLIC HEALTH CANCER ASSOCIATION

Second Session—Penn Top, Part 1, Hotel Statler

The Radiologist in Cancer Control: Recent Developments and Progress in Radio-Curability. MAURICE LENZ, M.D.

Discussant: MILTON FREIDMAN, M.D.

The Pharmacist in the Cancer Program. ROBERT P. FISCHELIS, Sc.D.

Discussant: RAY KAISER, M.D.

Experience with Postgraduate Extension Services in Cancer Pathology. ARTHUR PURDY STOUT, M.D.

Discussant: FRANK W. FOOTE, JR., M.D.

Occupational Cancer Survey in Ohio. THOMAS F. MANCUSO, M.D.

Discussant: MAY R. MAYERS, M.D.

National Cancer Institute Program for the Evaluation of Cancer Diagnostic Tests. JOHN E. DUNN, M.D., AND SAMUEL W. GREENHOUSE.

Discussant: FREDDY HOMBERGER, M.D.

MONDAY, 2:30 P.M.

SUBCOMMITTEE ON ACCIDENT PREVENTION OF THE COMMITTEE ON ADMINISTRATIVE PRACTICE

Parlor 2, Hotel Statler

Presiding: I. JAY BRIGHTMAN, M.D.

RECOGNIZED PUBLIC HEALTH TECHNIQUES AS APPLIED TO HOME ACCIDENT PREVENTION PANEL DISCUSSION

The Role of the State Health Officer. A. J. CHESLEY, M.D.

The Role of the Local Health Officer. EARLE G. BROWN, M.D.

The Role of the Public Health Nurse. ELIZABETH C. PHILLIPS, R.N.

The Role of the Sanitary Engineer. FREDERICK S. KENT.

The Role of the Director of Vital Statistics. HALBERT L. DUNN, M.D.

The Need for Research in the Home Safety Program. A. L. CHAPMAN, M.D.

Discussion.

Summary by Chairman.

MONDAY, 5:00 P.M.

RECEPTION TO THE PRESIDENT OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

Ballroom, Hotel Statler, 5–6:30 P.M., Informal

MONDAY, 6:30 P.M.

ASSOCIATION OF MATERNAL AND CHILD HEALTH AND CRIPPLED CHILDREN'S DIRECTORS

Dinner Session—East Room and Room 424, Hotel New Yorker, followed by evening session, 8:30 P.M.

ENGINEERING SECTION, CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS, AND CONFERENCE OF STATE SANITARY ENGINEERS

Annual Engineers' Stag Dinner, Keystone Room, Hotel Statler

"BILL" ORCHARD, *Master of Ceremonies*

MONDAY, 6:30 P.M.

LABORATORY SECTION AND THE CONFERENCE OF STATE AND PROVINCIAL PUBLIC HEALTH LABORATORY DIRECTORS

Dinner and Evening Session—Penn Top, Part 3, Hotel Statler

COMMEMORATION OF THE FIFTIETH ANNIVERSARY OF THE FOUNDING OF THE SECTION

Presiding: HOWARD J. SHAUGHNESSY, PH.D., AND F. R. HASSLER, M.D.

MONDAY, 8:00 P.M.

ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS

Evening Session—Conference Room 3, Hotel Statler

MONDAY, 8:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Third Session—North Ballroom, Hotel New Yorker

Presiding: WILLIAM E. AYLING, M.D., *President-Elect.*

THE PREPARATION OF, AND PROBLEMS IN SECURING ADEQUATE SCHOOL HEALTH PERSONNEL

Moderator: FRED V. HEIN, PH.D.

Directors of School Health Departments. CHARLES C WILSON, M.D.

Nurses. LULA P. DILWORTH, R.N.

Examining Physicians. GAGE WETHERILL, M.D.

Health Coördinators. HOWARD W. LUNDY, DR.P H.

ASSOCIATION OF RESERVE OFFICERS OF THE U. S. PUBLIC HEALTH SERVICE

Evening Session—Salle Moderne, Hotel Statler

COMMISSIONED OFFICERS ASSOCIATON, U. S. PUBLIC HEALTH SERVICE

Evening Session—Conference Room 9, Hotel Statler

MONDAY, 8:30 P.M.

FOOD AND NUTRITION SECTION

Evening Session, Parlor D, Hotel New Yorker

Presiding: PAUL S. PRICKETT, PH.D., *Chairman.*

Meeting of Section Council and Committee Chairmen.

TUESDAY, 8:00 A.M.

CLEVELAND HEALTH MUSEUM, NATIONAL ADVISORY COUNCIL

Breakfast Session—Parlor F, Hotel New Yorker

TUESDAY, 9:30 A.M.

ENGINEERING SECTION, THE CONFERENCE OF MUNICIPAL PUBLIC HEALTH ENGINEERS, AND THE CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—North Ballroom, Hotel New Yorker

Presiding: M. ALLEN POND, MORTON S. HILBERT, AND W. W. TOWNE.

Report of the Engineering Section Committee on Municipal Public Health Engineering. *Chairman,* MORTON S. HILBERT.

Report of the Engineering Section Committee on Training. *Chairman,* ELLIS S. TISDALE.

Training Future Sanitary Engineers in Engineering Colleges. HAROLD B. GOTAAS, SC.D.

Problems of Sanitation in Fringe Areas. SAMUEL R. MCGURK AND BLUCHER A. POOLE.

Highlights on Sewage Disposal. LOUIS F. WARRICK.

British Experience in the Collection and Disposal of Refuse. J. C. DAWES.

DENTAL HEALTH SECTION

First Session—Parlor 1, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., *Chairman.*

RESEARCH IN THE DENTAL FIELD IN PUBLIC HEALTH

Dental Findings in the Fluorination Project at Kingston, N. Y. DAVID B. AST, D.D.S.

Pediatric Findings in the Fluorination Project at Kingston, N. Y. EDWARD SCHLESINGER, M.D.

TUESDAY, 9:30 A.M.

DENTAL HEALTH SECTION (Cont.)

Chemical Agents in the Field of Dental Caries Research (Those Having an Effect on the Tooth Itself). NORMAN S. SIMMONS, D.D.S.

Chemical Agents in the Field of Dental Caries Research (Those Agents Which Affect the Acidogenic Organisms of the Mouth). JOHN W. HEIN, D.D.S.

Periodontia in Public Health. SAMUEL CHARLES MILLER, D.D.S.

EPIDEMIOLOGY SECTION

First Session—Penn Top, Part 1, Hotel Statler

Presiding: JOHN J. PHAIR, M.D., *Chairman.*

The Relation of Housing to the Incidence of Meningococcic Infection in an Outbreak in Oak Ridge, Tenn. BERNARD M. BLUM, M.D., AND WILLIAM F. ELKIN.

Meningitis Associated with an Epidemic of *Salmonella panama* in Infants. FREDERICK S. LEEDER, M.D., G. W. SCHELM, M.D., AND ARNOLD JUENKER.

Effective Control of an Outbreak of Rabies in Memphis and Shelby County, Tennessee. ERNEST S. TIERKLL, V.M.D., LLOYD M. GRAVES, M.D., AND H. G. TUGGLE.

Q Fever in Southern California. JOSEPH A. BELL, M.D., ROBERT J. HUEBNER, M.D., AND M. DOROTHY BECK.

Apparent Decline in the Rate of Tuberculosis Infection among Household Associates of Sputum-Positive Cases of Tuberculosis. WENDELL R. AMES, M.D., AND HAROLD C. MILES, M.D.

Election of Section Officers.

FOOD AND NUTRITION, MATERNAL AND CHILD HEALTH, MEDICAL CARE, AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Ballroom, Hotel Statler

Presiding: ALICE H. SMITH, HERBERT R. KOBES, M.D., ELLEN C. POTTER, M.D., AND RUTH FREEMAN, R.N.

REHABILITATION OF CRIPPLED CHILDREN AND ADULTS ROUND TABLE

Moderator: BEN L. BOYNTON, M.D.

The Crippled Children's Program. CARLETON DEAN, M.D.

Role of the General Hospital. DONALD A. COVALT, M.D.

The Veterans Administration Program. A. B. C. KNUDSON, M.D.

Vocational Rehabilitation. CORBETT REEDY.

HELENE SENSENICH.

HELEN STACEY.

TUESDAY, 9:30 A.M.

HEALTH OFFICERS SECTION

First Session—Keystone Room, Hotel Statler

Presiding: STANFORD F. FARNSWORTH, M.D., *Chairman.*

PUBLIC HEALTH ADMINISTRATION—AT HOME AND ABROAD

The Health Officer and His Staff Receive the Foreign Visitor. HENRY R. O'BRIEN, M.D.

Public Relations in Public Health. VLADO A. GETTING, M.D.

(Other speakers to be announced.)

INDUSTRIAL HYGIENE SECTION

First Session—Parlor 2, Hotel Statler

Presiding: WILLIAM G. FREDRICK, Sc D., *Chairman.*

INDUSTRIAL HYGIENE MARCHES ON—THE THIRTY-FIFTH ANNIVERSARY OF THE SECTION

The Past and Future of Industrial Health. (Speaker to be announced.)

Labor's Viewpoint on Industrial Health. LEO PRICE, M.D.

The Government and Industrial Health. (Speaker to be announced.)

The Educator Views Industrial Health. (Speaker to be announced.)

The Role of Technical Societies in Industrial Health (Speaker to be announced.)

LABORATORY SECTION

First Session—Salle Moderne, Hotel Statler

Presiding: HOWARD J. SHAUGHNESSY, PH.D., *Chairman.*

BRUCELLOSIS

Brucellosis. CHARLES M. CARPENTER, M.D.

Studies of Brucellosis in Indiana. SAMUEL R. DAMON, PH.D.

Screen Testing in Brucellosis: Laboratory Confirmation of Diagnosis of Brucellosis. NELL HIRSCHBERG, PH.D.

The Brucella Ring Test. RONALD M. WOOD, PH.D.

The Brucella Ring Test: Its Potential Value in the Control of Brucellosis. ALBERT V. HARDY, M.D.

The Brucella Ring Test in Mixed Raw Milk Supplies. HARRY E. BREMER.

TUESDAY, 9:30 A.M.

PUBLIC HEALTH EDUCATION SECTION

First Session—East Room and Room 424, Parlors E and H, Parlor F and Parlor G, Hotel New Yorker. Conference Room 2, Hotel Statler.

MEETINGS OF THE STANDING COMMITTEES OF THE SECTION

9:30–12:00 East Room and Room 424, New Yorker	Committee on Materials and Techniques. BERYL J. ROBERTS AND YOLANDE LYON, *Co-Chairmen.*
9:30–12:00 Parlors E and H, New Yorker	Committee on Commercial Advertising and Health Education. MARY P. CONNOLLY, *Chairman.*
9:30–12:00 Parlor F, New Yorker	Committee on Case Studies in Community Organization. LUCY S. MORGAN, PH D, AND VIVIAN DRENCKHAHN, *Co-Chairmen.*
9:30–12:00 Parlor G, New Yorker	Committee on Public Health Education Planning. C. MAYHEW DERRYBERRY, PH.D., AND ANN W. HAYNES, *Co-Chairmen.*
9:30–12:00 Conference Room 2, Statler	Committee on Public Health Films. KENNETH D. WIDDEMER, *Chairman.*

SCHOOL HEALTH SECTION

First and Second Sessions—Panel Room, Parlors A and C, Hotel New Yorker

Presiding: WARREN H. SOUTHWORTH, DR.P.H., *Chairman.*

ROUND TABLES ON SCHOOL HEALTH

9:30–12:00 2:30– 3:30 Panel Room, New Yorker	Undergraduate Training Programs in Health Education for Elementary School Teachers. *Discussion Leader:* JOHN H. SHAW, ED.D.
9:30–12:00 2:30– 3:30 Parlor A, New Yorker	Health Service Programs for Secondary Schools. *Discussion Leader:* REGINE K. STIX, M.D.
9:30–12:00 2:30– 3:30 Parlor C, New Yorker	How to Judge the Effectiveness of a School Health Program. *Discussion Leader:* DOROTHY B. NYSWANDER, PH.D.
3:45 P.M. Panel Room, New Yorker	Summary Session. *Discussion Leader:* WARREN H. SOUTHWORTH, DR.P.H.

Section Business.

TUESDAY, 9:30 A.M.

STATISTICS SECTION

First Session—Penn Top, Part 3, Hotel Statler

Presiding: FORREST E. LINDER, PH D, *Chairman.*

CURRENT DEVELOPMENTS *

Changes in Mortality through the Use of the New International Statistical Classification. CARL L. ERHARDT, AND LOUIS WEINER, C.E.

Discussant: HENRY J. KLEIN.

Incompleteness of Reporting of Fetal Deaths. LEONA BAUMGARTNER, M.D.

Morbidity Statistics—Do We Want Them? PERCY STOCKS, M.D.

Recent Developments in Public Health Statistics. HALBERT L. DUNN, M.D.

Section Business.

* Members of the Section should plan to visit Open House at the Metropolitan Life Insurance Company, Wednesday afternoon, October 26. See Scientific Trips in Final Program.

TUESDAY, 12:30 P.M.

ENGINEERING SECTION

Luncheon Session—North Ballroom, Hotel New Yorker

Presiding: M. ALLEN POND, *Chairman.*

Report of the Engineering Section Council for 1949. GEORGE O. PIERCE

Report of the Engineering Section Project. FRANCIS B. ELDER.

Report of the Engineering Section Committee on Membership. *Chairman,* H. E. MILLER.

Report of the Engineering Section Policy Advisory Committee. *Chairman,* JOEL C. BEALL.

Section Business.

PUBLIC HEALTH EDUCATION SECTION

Luncheon Session—Salle Moderne, Hotel Statler

Presiding: A. HELEN MARTIKAINEN, *Chairman.*

Election of Officers.

Public Health Practices in Germany. W. W. BAUER, M.D., AND LT. COL. WALTER R. DEFOREST, M.C.

Section Business.

TUESDAY, 2:30 P.M.

DENTAL HEALTH SECTION AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Keystone Room, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., AND ROBERT A. DOWNS, D.D.S.

CONTRIBUTIONS TO A GOOD SCHOOL DENTAL EDUCATION PROGRAM

Discussion.

Motion Picture Film: It's Your Health.

Discussants:

MARGARET H. JEITREYS

EMILY BROWN

ENGINEERING, FOOD AND NUTRITION, HEALTH OFFICERS, INDUSTRIAL HYGIENE, PUBLIC HEALTH EDUCATION, PUBLIC HEALTH NURSING, AND STATISTICS SECTIONS

Joint Session—Ballroom, Hotel Statler

Presiding: M. ALLEN POND, MARGARET C. MOORE, STANFORD F. FARNSWORTH, M.D., WILLIAM G. FREDRICK, SC.D., A. HELEN MARTIKAINEN, RUTH FREEMAN, R.N., AND FORREST E. LINDER, PH.D.

SURVEY METHODS, THEIR APPLICATION, CONTRIBUTION, AND EFFICACY

Panel Discussion

Moderator: HUGH R. LEAVELL, M.D.

Participants:

JOHN D. PORTERFIELD, M.D.

MARION FERGUSON, PH.D.

CLAIR E. TURNER, DR P H.

WILLIAM T. INGRAM

A. HUGHES BRYAN, M.D.

HAROLD F. DORN, PH.D.

ENGINEERING SECTION

First Session—North Ballroom, Hotel New Yorker

Presiding: CHARLES L. SENN, *Vice-Chairman.*

Utilization of Sanitary Engineers in the Army. LT. COL. RAYMOND J. KARPEN.

TUESDAY, 2:30 P.M.

ENGINEERING SECTION (Cont.)

Discussants:

VINCENT B. LAMOUREUX, C. E.

GORDON E. McCALLUM, C.E.

Sanitary Implications of the Missouri Valley Project. GLEN J. HOPKINS.

A Practical Public Relations Program in Los Angeles. CHARLES R. SENN.

Principles of Human Persuasion As Applied by Industry. FEN K. DOSCHER.

EPIDEMIOLOGY, HEALTH OFFICERS, LABORATORY, AND MATERNAL AND CHILD HEALTH SECTIONS

Joint Session—Penn Top, Hotel Statler

Presiding: HOLLIS S. INGRAHAM, M.D., HOWARD J. SHAUGHNESSY, PH.D., SARAH S. DEITRICK, M.D., AND JOHN M. WHITNEY, M.D.

SIMULTANEOUS OR MULTIPLE IMMUNIZATION

Simultaneous Immunization of Young Children against Diphtheria, Tetanus, and Pertussis; Experience in a Northern Metropolitan Area. LOUIS W. SAUER, M.D., AND WINSTON H. TUCKER, M.D.

Simultaneous Immunization of Young Infants against Diphtheria, Tetanus, and Pertussis; Experience in a Southern Metropolitan Area. J. CYRIL PETERSON, M.D., AND AMOS CHRISTIE, M.D.

Simultaneous Immunization of New-born Infants against Diphtheria, Tetanus, and Pertussis; Production of Antibodies and Duration of Antibody Levels in an Eastern Metropolitan Area. PAUL A. DISANT'AGNESE, M.D.

Simultaneous Immunization against Diphtheria, Tetanus, and Pertussis; Problems Inherent in the Production of a Good Multiple Antigen. RODERICK MURRAY, M.D.

Simultaneous Immunization against Diphtheria, Tetanus, and Pertussis; Practical Applications in Use of Multiple Antigens in Public Health Immunization Programs. JOHN J. PHAIR, M.D.

FOOD AND NUTRITION SECTION

First Session—Parlor 1, Hotel Statler

Presiding: PAUL S. PRICKETT, PH.D., *Chairman.*

THE HEALTH ASPECTS OF CHEMICALS INTRODUCED IN FOODS

General Comments. PAUL S. PRICKETT, PH.D.

Chemicals Introduced in the Production of Foods. JAMES R. WILSON, M.D.

Chemicals Introduced in the Processing of Foods. FRANKLIN C. BING, PH.D.

Protection Afforded the Consumer. W. B. WHITE, PH.D.

TUESDAY, 2:30 P.M.

FOOD AND NUTRITION SECTION (Cont.)

The Application of the Federal Food, Drug and Cosmetic Act to Added Chemicals in Foods for Public Health Protection. CHARLES WESLEY DUNN.

Discussion.

Section Business.

LABORATORY SECTION

Second Session—Parlor 2, Hotel Statler

Presiding: HOWARD J. SHAUGHNESSY, PH.D., *Chairman.*

VIRUS, RICKETTSIA, SYPHILIS

"Q" Fever in a Wool and Hair Processing Plant. M. MICHAEL SIGEL, PH.D., T. F. MCNAIR SCOTT, M.D., WERNER HENLE, M.D., AND O. HENRY JANTON, M.D.

Complement-Fixing and Neutralizing Antibody Studies on Human Beings Vaccinated against Rabies. HERALD R. COX, SC.D., IRVING LEBELL, M.D., C. J. DEBOER, PH.D., AND EDNA K. HAZZ.

Studies of a Freshly Isolated Strain of Influenza Virus A: Antigenic Analysis and Serologic Response to Subcutaneous and Intracutaneous Vaccination. IRVING GORDON, M.D., SOPHIA M. COHEN, GLADYS M. GNESH, AND ELINOR WHITNEY.

Laboratory Studies on Treponemal Immobilizing Antibodies in Syphilis. ROBERT A. NELSON, JR., M.D.

The False-Positive Reaction in Serology of Syphilis: The Presence of an Anti-Acetone Soluble Substance in Human Serum. DANIEL WIDELOCK, PH.D., MARY F. GONSHOREK, AND LILLIAN MARSDEN.

The Use of Multiphasic Agglutination and Special Complement-Fixation Tests for Screening Bacterial and Virus Diseases in the Fourth Army Medical Laboratory. COL. DWIGHT M. KUHNS, M.C.

MEDICAL CARE SECTION

First Session—Parlors F and G, Hotel New Yorker

Presiding: EDWARD S. ROGERS, M.D., *Chairman.*

REGIONALIZATION OF MEDICAL SERVICES ROUND TABLE

General Considerations. HENRY B. MULHOLLAND, M.D.

The Michigan Program. GRAHAM L. DAVIS.

TUESDAY, 2:30 P.M.

MEDICAL CARE SECTION (Cont.)

Experience in New England. BROOKS RYDER, M.D.

Regional Hospital Organization in Great Britain. A. LESLIE BANKS, M.D.

Integration of Local Health and Medical Service Districts. JOSEPH W. MOUNTIN, M.D.

BASIL C. MACLEAN, M.D.

RUSSELL A. NELSON, M.D.

SCHOOL HEALTH SECTION

CONTINUATION OF ROUND TABLES ON SCHOOL HEALTH

See page 1206

TUESDAY, 8:30 P.M.

FIRST GENERAL SESSION

Ballroom, Main Floor, Manhattan Center, 34th Street and Eighth Avenue

Presiding: CHARLES F. WILINSKY, M.D., *President,* American Public Health Association.

Addresses of Welcome:

HONORABLE WILLIAM O'DWYER, Mayor of the City of New York.

HERMAN E. HILLEBOE, M.D., Commissioner, New York State Department of Health.

HARRY S. MUSTARD, M.D., Commissioner, New York City Department of Health.

Presentation of the Lasker Awards for 1949.

WEDNESDAY, 8:00 A.M.

ALLEGHENY COLLEGE ALUMNI

Breakfast Session—Room 129, Hotel Statler

THE JOHNS HOPKINS UNIVERSITY ALUMNI

Breakfast Session—Salle Moderne, Hotel Statler

WEDNESDAY, 8:00 A.M.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY ALUMNI

Breakfast Session—East Room and Room 424, Hotel New Yorker

UNIVERSITY OF MICHIGAN ALUMNI

Breakfast Session—Penn Top, Part 3 Hotel Statler

ALUMNI OF THE SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF NORTH CAROLINA

Breakfast Session—Parlors F and G, Hotel New Yorker

WEDNESDAY, 9:30 A.M.

DENTAL HEALTH SECTION

Second Session—Parlor 2, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., *Chairman.*

REPORT ON TOPICAL FLUORIDE PROGRAM

Planning a Topical Fluoride Program on a District Level. WILLIAM P. KROSCHEL, D.D.S.

Organizing and Planning a State Topical Fluoride Program. ROY D. SMILEY, D.D.S.

Community and State Educational Program on Topical Fluoride Application. LELAND S. KLEINSCHMIDT.

(Other speakers to be announced.)

11:30 A.M. Business Meeting.

ENGINEERING SECTION

Second Session—Penn Top, Part 1, Hotel Statler

Presiding: M. ALLEN POND, *Chairman.*

Report of the Engineering Section Committee on Water Supply. *Chairman,* CHARLES R. COX.

New Haven Swimming Pool Studies. ERIC W. MOOD.

The Work and Objectives of the 3-A Sanitary Standards Committee. HAROLD S. ADAMS, PAUL CORASH, AND C. W. WEBER.

Ducks and Shellfish Sanitation. MILTON H. BIDWELL.

Engineering Aspects of Home Accident Prevention. FREDERICK S. KENT.

WEDNESDAY, 9:30 A.M.

EPIDEMIOLOGY AND LABORATORY SECTIONS

Joint Session—Columbia-Presbyterian Medical Center, 168th Street and Broadway, New York, N. Y.

Presiding: FRANKLIN H. TOP, M.D., AND HOWARD J. SHAUGHNESSY, PH.D.

MYCOLOGY

Serological Tests in the Diagnosis and Prognosis of Coccidioidomycosis. CHARLES E. SMITH, M.D., MARGARET T. SAITO, RODNEY RAU BEARD, M.D., RUTH MCFADDEN KEPP, R.N., RUTH WHEATLAKE CLARK, AND BERNICE U. EDDIE, D.P.H.

Laboratory Aids in the Diagnosis of North American Blastomycosis. NORMAN F. CONANT, PH.D.

Some Epidemiologic Studies on North American Blastomycosis. DONALD S. MARTIN, M.D.

Histoplasmosis: Animal Reservoirs and Other Sources in Nature of the Pathogenic Fungus, Histoplasma. C. W. EMMONS, PH.D.

Serologic Studies in Histoplasmosis. CAPTAIN SAMUEL SASLAW, M.C. AND CHARLOTTE C. CAMPBELL.

This session has been arranged by Rhoda W. Benham, Ph.D., and Harold W. Brown, M.D., of Columbia University. Following the presentation of the papers, luncheon will be provided at the Center in Bard Hall at the price of $1. Tickets will be available at the Registration Desk in Convention Headquarters at the Hotel Statler.

Plans are under consideration for an exhibit following the luncheon on various aspects of medical mycology, such as: (a) The pathology of fungous diseases; (b) Laboratory diagnosis; demonstration of the Woods light; direct slide and culture methods; (c) Etiology; demonstration of cultures. (d) Phase microscopy in the study of fungous diseases; (e) Infections of the central nervous system, skin and bone due to Cryptococcus.

FOOD AND NUTRITION SECTION

Second Session—Keystone Room, Hotel Statler

Presiding: PAUL S. PRICKETT, PH.D., *Chairman.*

THE USE OF ISOTOPES IN NUTRITION RESEARCH

Rates of Biological Processes Ascertained with the Aid of Isotopes. DEWITT STETTEN, JR., M.D.

Studies on the Metabolism of Niacin and Tryptophan Using Isotopes. JAMES M. HUNDLEY, M.D.

Isotopes and Iron Absorption. CARL V. MOORE, M.D.

Metabolism of Calcified Tissues Studied with Radioisotopes of Phosphorus, Calcium, and Carbon. W. D. ARMSTRONG, M.D.

Radioactive Iodine as a Diagnostic Tracer in the Study of Thyroid. K. E. CORRIGAN, PH.D.

WEDNESDAY, 9:30 A.M.

HEALTH OFFICERS, PUBLIC HEALTH EDUCATION, AND SCHOOL HEALTH SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION IN COÖPERATION WITH THE NATIONAL COMMITTEE FOR MENTAL HYGIENE

Joint Session—Ballroom, Hotel Statler

Presiding: STANFORD F. FARNSWORTH, M.D., A. HELEN MARTIKAINEN, WARREN H. SOUTHWORTH, DR.P.H., AND WILLIAM E. AYLING, M.D.

INCORPORATING MENTAL HYGIENE CONCEPTS INTO PUBLIC HEALTH PROGRAMS

Mental Health Principles in the State and Local Health Program: A Commonwealth Fund Demonstration. H B. COTTRELL, M.D.

A Health Department Increases the Awareness of its Staff for Mental Hygiene. IVAN C. BERLIEN, M.D.

Nature of Mental Health Programs in Health, Welfare, and Educational Agencies under the National Mental Health Act. HENRY C. SCHUMACHER, M.D.

MATERNAL AND CHILD HEALTH SECTION

First Session—Parlor 1, Hotel Statler

Presiding: SARAH S. DEITRICK, M.D., *Chairman.*

PREMATURITY

Definition of Prematurity. NICHOLSON J. EASTMAN, M.D.

The New Premature Transport Service in New York City. HELEN M. WALLACE, M.D., AND MARGARET A. LOSTY, R.N.

Retrolental Fibroplasia. WILLIAM C. OWENS, M.D.

The Relationship of Fetal and Infant Mortality to Residential Segregation: An Inquiry into Social Epidemiology. ALFRED YANKAUER, JR., M.D.

What Happens to Prematures. HEDWIG KOENIG, M.D.

MEDICAL CARE SECTION

Second Session—North Ball Room, Hotel New Yorker

Presiding: DEAN A. CLARK, M.D.

VOLUNTARY HEALTH INSURANCE ON THE NATIONAL SCENE

The Present Status of Voluntary Health Insurance. MARGARET C. KLEM.

The Blue Cross-Blue Shield Program. PAUL R. HAWLEY, M.D.

Group Health Coöperatives. JERRY VOORHIS.

The United Mine Workers Health Program. WARREN F. DRAPER, M.D.

WEDNESDAY, 9:30 A.M.

STATISTICS SECTION

Second Session—Panel Room, Parlor C, Parlors E and H, Hotel New Yorker

Presiding: FORREST E. LINDER, PH.D., *Chairman.*

ROUND TABLES ON PUBLIC HEALTH STATISTICS

9:30–11:30 Parlor A, New Yorker	Cancer Statistics. *Discussion Leader:* HAROLD F. DORN, PH.D.
9:30–11:30 Parlor C, New Yorker	Marriage and Divorce Statistics. *Discussion Leader:* ELIZABETH PARKHURST.
9:30–11:30 Parlors E and H, New Yorker	Sampling Techniques in Public Health Statistics. *Discussion Leader:* THEODORE D. WOOLSEY.
9:30–11:30 Panel Room, New Yorker	Occupational and Industrial Mortality Statistics. *Discussion Leader:* ROBERT J. VANE.
11:30–1:30 Panel Room, New Yorker	Summary Session: *Discussion Leader:* FORREST E. LINDER, PH.D. *Section Business.*

WEDNESDAY, 12:30 P.M.

EPIDEMIOLOGY SECTION

Luncheon Session—Salle Moderne, Hotel Statler

Presiding: JOHN J. PHAIR, M.D., *Chairman.*

IN HONOR OF HAVEN EMERSON, M.D.

Introductory Remarks. JOHN J. PHAIR, M.D.

Introduction of Speakers. HENRY F. VAUGHAN, DR.P.H.

Haven Emerson—The Public Health Statesman. CHARLES F. BOLDUAN, M.D.

Haven Emerson—The Teacher. EARLE B. PHELPS, C.E.

Haven Emerson—The Epidemiologist. A. J. CHESLEY, M.D.

Response. HAVEN EMERSON, M.D.

WEDNESDAY, 12:30 P.M.

OVERSEAS LUNCHEON

Sponsored by the Lily-Tulip Cup Corporation

Penn Top, Part 3, Hotel Statler

All foreign delegates are cordially invited to attend. Please call at Exhibit Booth No. 10 on the Mezzanine for tickets of admission.

WEDNESDAY, 2:30 P.M.

GOVERNING COUNCIL

Second Meeting, Keystone Room, Hotel Statler

WEDNESDAY, 6:30 P.M.

AMERICAN SCHOOL HEALTH ASSOCIATION

Dinner Meeting—Salle Moderne, Hotel Statler

Presiding: CYRUS H. MAXWELL, M.D., *President.*

Presentation of the William A. Howe Award to:

A. O. DEWEESE, M.D.

CLAIR E. TURNER, DR.P.H.

Responses: DR. DEWEESE AND DR. TURNER.

Dinner Speaker: COLONEL JAMES P. COONEY, The School's Part in Meeting an Attack with the Atom Bomb.

COMMITTEE OF CONSULTANTS OF THE NATIONAL SANITATION FOUNDATION

Dinner and Evening Sessions—East Room and Room 424, Hotel New Yorker

DELTA OMEGA

Dinner Session—North Ballroom, Hotel New Yorker

GRADUATES' ORGANIZATION, SCHOOL OF HYGIENE, UNIVERSITY OF TORONTO

Dinner and Evening Session—Parlor F, Hotel New Yorker

WEDNESDAY, 6:30 P.M.

HARVARD PUBLIC HEALTH ALUMNI ASSOCIATION

Dinner Meeting—Beekman Tower Hotel

ORDER OF THE BOARS

Dinner and Evening Session—Parlor C, Hotel New Yorker

WEDNESDAY, 8:00 P.M.

CONFERENCE OF STATE HOSPITAL PERSONNEL

Evening Session—Conference Room 3, Hotel Statler

THURSDAY, 8:00 A.M.

UNIVERSITY OF MINNESOTA ALUMNI

Breakfast Session—Panel Room, Hotel New Yorker

YALE UNIVERSITY ALUMNI

Breakfast Session—Parlor 1, Hotel Statler

THURSDAY, 9:30 A.M.

DENTAL HEALTH, MATERNAL AND CHILD HEALTH, AND SCHOOL HEALTH SECTIONS

Joint Session—Keystone Room, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., SARAH S. DEITRICK, M.D., AND WARREN H. SOUTHWORTH, DR.P.H.

ROUND-UP OF RESEARCH WITH IMPLICATIONS FOR SCHOOL AGE CHILDREN

What Does the School Physician See? (A cross-sectional study of the school physicians' clinical observations in 15,000 elementary school children.) ROBERT W. CULBERT, M.D., AND HAROLD JACOBZINER, M.D.

Study in the Reduction of Absences from School of Children with Ringworm of the Scalp. (A program of treatment, involving school, home, and clinic.) ROBERT W. CULBERT, M.D., MAX LERNER, M.D., AND ANNA E. R. ROBINSON, M.D.

Clinical Audiology in Public Health and School Health Programs. WILLIAM G. HARDY, PH.D.

Advancements in Dental Research and Dental Health Education Affecting the School Child. J. M. WISAN, D.D.S.

THURSDAY, 9:30 A.M.

ENGINEERING, LABORATORY, AND STATISTICS SECTIONS, AND THE BIOMETRICS SECTION OF THE AMERICAN STATISTICAL ASSOCIATION AND THE BIOMETRICS SOCIETY

Joint Session—Ballroom, Hotel Statler

Presiding: M. ALLEN POND, HOWARD J. SHAUGHNESSY, PH.D., AND FORREST E. LINDER, PH.D.

STATISTICAL METHODS FOR WATER AND SEWAGE ANALYSIS ROUND TABLE

Moderator: ABEL WOLMAN, DR. ENG.

Theory Underlying Most Probable Numbers. WILLIAM G. COCHRAN, PH.D.

Statistical Analysis in Laboratory Studies. (Speaker to be announced.)

Evaluation of Different Methods of Sewage Chlorination. JOHN W. FERTIG, PH.D., AND AUSTIN N. HELLER.

Statistical Study of Illness in Relation to Natural Bathing Water Quality. ALBERT H. STEVENSON AND THEODORE D. WOOLSEY.

FOOD AND NUTRITION SECTION AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—North Ballroom, Hotel Statler

Presiding: MARIETTA EICHELBERGER, PH.D., AND WALTER WILKINS, M.D.

NUTRITIONAL ASPECTS OF SCHOOL FEEDING PROGRAMS

International Aspects of Child Feeding. MARJORIE L. SCOTT.

Preliminary Report of the Canadian Red Cross School Meal Study. ELIZABETH CHANT ROBERTSON, M.D.

School Lunches: Their Nutritive Value and Possible Effect on the Health and Diet of Children. MILICENT L. HATHAWAY, PH.D.

The Evaluation of the School Lunch from a Health Standpoint. CLARENCE A. VELAT, M.D.

The Value of School Lunch in a Community Nutrition Program. PAULINE BEERY MACK, PH.D., AND ANNA DEPLANTER BOWES.

EPIDEMIOLOGY SECTION

Second Session—Salle Moderne, Hotel Statler

Presiding: JOHN J. PHAIR, M.D., *Chairman.*

THE HISTORY OF AMERICAN EPIDEMIOLOGY

The Colonial Era and the First Years of the Republic (1620–1799). C.-E. A. WINSLOW, DR.P.H.

The Period of Great Epidemics (1800–1875). W. G. SMILLIE, M.D.

THURSDAY, 9:30 A.M.

EPIDEMIOLOGY SECTION (Cont.)

The Bacteriological Era (1876–1920). JAMES A. DOULL, M.D.

The Twentieth Century—Yesterday, Today, and Tomorrow. JOHN E. GORDON, M.D.

HEALTH OFFICERS AND MEDICAL CARE SECTIONS

Joint Session—Penn Top, Part 1, Hotel Statler

Presiding: STANFORD F. FARNSWORTH, M.D., AND MILTON TERRIS, M.D.

MEDICAL CARE AND THE LOCAL HEALTH DEPARTMENT

The Pattern of Organized Medical Care Programs in a Rural County. MILTON I. ROEMER, M.D., AND ETHEL A. WILSON.

Integration of Public Health and Hospital Services in Denver. JAMES P. DIXON, M.D.

The Baltimore Medical Care Program. HUNTINGTON WILLIAMS, M.D.

Program Analysis and Planning in Medical Care. LEONA BAUMGARTNER, M.D.

Discussants:

C. HOWE ELLER, M.D.

VERGIL N. SLEE, M.D.

JAMES A. THRASH, M.D.

LABORATORY SECTION

Third Session—Penn Top, Part 3, Hotel Statler

Presiding: HOWARD J. SHAUGHNESSY, PH.D., *Chairman.*

TUBERCULOSIS

Antigenic Activity of Dry Glucose BCG Vaccine. KONRAD BIRKHAUG, M.D.

Use of BCG in Mexico. ALBERTO P. LEON, M.D.

Problem of Standardization of BCG Vaccine. JOSEPH D. ARONSON, M.D., AND PATRICIA SCHNEIDER.

Use of 23 Per cent Trisodium Phosphate in the Concentration of Material for the Acid-Fast Bacilli. BEATRICE D. LARNER, D.SC.

Methodology in Laboratory Diagnosis of Tuberculosis. JOHN ABBOTT, M.D.

A New Medium for Practical Bacteriological Diagnosis of Tuberculosis. LEONORE R. PEIZER.

THURSDAY, 9:30 A.M.

MERIT SYSTEM SERVICE

First Session—Parlor 2, Hotel Statler

Presiding: CHARLES B. FRASHER.

EXAMINING THE EXAMINATION

Panel Discussion

Representing Viewpoints of:

Agencies Using Examinations. (Speaker to be announced.)

Scientific Test Development. SIDNEY H. NEWMAN, PH.D.

Health Officers. WILTON L. HALVERSON, M D.

Schools of Public Health. GAYLORD W ANDERSON, M.D.

The Examinee. MARY E. PARKER, R.N.

Fiscal Officers. WILLIAM R. PEEBLES.

Discussants:

LILLIAN D. LONG, PH.D.

FRED S. BEERS.

PUBLIC HEALTH EDUCATION SECTION

Second and Third Sessions—Grand Ballroom, Hotel New Yorker

Presiding: A. HELEN MARTIKAINEN, *Chairman.*

PROBLEMS OF COMMUNITY ORGANIZATION AND HEALTH EDUCATION

An all day workshop session for the discussion of the philosophies and practices of health education specialists in urban and rural communities.

Discussion leaders and consultants to be announced.

Small groups may be assigned to the following rooms for discussion of specialized problems:

East Room and Room 424

Parlors E and H

THURSDAY, 12:30 P.M.

DENTAL HEALTH SECTION

Luncheon Session—Parlor 2, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., *Chairman.*

Dental Health Activities in Norway. GUTTORM TOVERUD, PH.D.

THURSDAY, 12:30 P.M.

INDUSTRIAL HYGIENE SECTION

Luncheon Session—Parlor 1, Hotel Statler

Presiding: WILLIAM G. FRLDRICK, SC.D., *Chairman.*

The Thirty-fifth Anniversary of the Industrial Hygiene Section. WILLIAM G. FREDRICK, SC.D.

Section Business.

PUBLIC HEALTH NURSING SECTION

Luncheon Session—North Ballroom, Hotel New Yorker

Presiding: RUTH FREEMAN, R.N., *Chairman.*

THURSDAY, 2:30 P.M.

DENTAL HEALTH, MEDICAL CARE AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Penn Top, Parts 1 and 2, Hotel Statler

Presiding: MARGARET H. JEFFREYS, EDWIN F. DAILY, M.D., AND EMILIE SARGENT, R.N.

THE BRITISH NATIONAL HEALTH SERVICE

The First Year's Experience. A. LESLIE BANKS, M.D.

The General Practitioner Service. JOSEPH S. COLLINGS, M.D.

The Medical Profession and the Service. J. T. RICE-EDWARDS, M.D.

The Role of the Health Officer. J. A. SCOTT, M.D.

Discussants:

ALMA HAUPT, R.N.

PHILIP E. BLACKERBY, JR., D.D.S.

GEORGE BUGBEE

HUGH R. LEAVELL, M.D.

LOUIS H. BAUER, M.D.

ENGINEERING SECTION AND THE INTER-AMERICAN ASSOCIATION OF SANITARY ENGINEERING

Joint Session—Keystone Room, Hotel Statler

Presiding: CHARLES L. SENN AND CLARENCE I. STERLING, JR.

GLOBAL CONTROL OF INSECT VECTORS

Advancing Frontiers in Insect Control. JUSTIN M. ANDREWS, SC.D.

THURSDAY, 2:30 P.M.

ENGINEERING SECTION AND INTER-AMERICAN ASSOCIATION OF SANITARY ENGINEERING (Cont.

The Malaria Control Activities of WHO. PAUL F. RUSSELL, M.D.

Domestic Insect Vector Control in Venezuela. ARTURO L. BERTI, DR.ENG.

Anopheline Eradication in Sardinia. JOHN A. LOGAN, D.Sc.

Insect Vector Control Activities by the U. S. Public Health Service. FRANK TETZLAFF, C.E.

Fly Control Techniques. JOSEPH H. COFFEY AND PAUL P. MAIER.

EPIDEMIOLOGY, FOOD AND NUTRITION, HEALTH OFFICERS, AND STATISTICS SECTIONS

Joint Session—Salle Moderne, Hotel Statler

Presiding: JOHN J. PHAIR, M.D., FRANCES MACKINNON, STANFORD F. FARNSWORTH, M.D., AND FORREST E. LINDER, PH.D.

PROBLEMS OF AN AGING POPULATION

Multiphasic Screening Examinations—An Extension of Mass Case Finding Technique. LESTER A. BRESLOW, M.D.

Glaucoma, A Community Health Problem. FRANKLIN M. FOOTE, M.D.

(Title to be announced.) M. ALLEN POND.

Statistical Aspects of Current Research in the Cardiovascular Diseases. FELIX E. MOORE, JR., AND MARJORIE T. BELLOWS.

Nutrition and Dietary Habits of Aging Women. MARGARET A. OHLSON, PH.D.

INDUSTRIAL HYGIENE SECTION

Second Session—Parlor 1, Hotel Statler

Presiding: WILLIAM G. FREDRICK, SC.D., *Chairman.*

Atmospheric Comfort. CONSTANTIN P. YAGLOU.

Inter-society Coöperation in Industrial Hygiene. J. J. BLOOMFIELD.

Toxicity and Toxicology of Surface Active Agents. HEINRICH BRIEGER, M.D.

Administrative Practices in Industrial Hygiene. JAMES G. TOWNSEND, M.D.

Pneumoconiosis. LEONARD GREENBURG, M.D.

THURSDAY, 2:30 P.M.

LABORATORY SECTION

Fourth Session—Panel Room, Parlor A, Parlor C, Hotel New Yorker

WORKSHOPS

(A series of concurrent discussions)

Parlor C: Milk.

Discussion Leader: ARCHIE H. ROBERTSON, PH.D.

Parlor A: Biologic Products.

Discussion Leader: GEOFFREY EDSALL, M.D.

Panel Room: Enteric Disease, Serologic and 'phage Typing.

Discussion Leader: PHILIP R. EDWARDS, PH D.

MATERNAL AND CHILD HEALTH, PUBLIC HEALTH NURSING, AND SCHOOL HEALTH SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Ballroom, Hotel Statler

Presiding: SARAH S. DEITRICK, M.D., RUTH FREEMAN, R.N., WARREN H. SOUTHWORTH, DR.P.H., AND GERTRUDE E. CROMWELL, R.N.

MENTAL HYGIENE IN THE CLASSROOM

A Demonstration of Teaching Procedures which Lead to Effective Human Relations in the Classroom.

The Delaware Human Relations Class Program. H. EDMUND BULLIS.

Seventh Grade Class Demonstration, Joan of Arc Junior High School, New York City. M. VIRGINIA MASON.

Panel Discussion

Moderator: (To be announced.)

Participants:

JOSEPH MERSAND, PH.D.

EMILY E. O'MALLEY.

N. H. DYER, M.D.

PAUL STEVENSON, M.D.

M. VIRGINIA MASON.

H. EDMUND BULLIS.

THURSDAY, 2:30 P.M.

PUBLIC HEALTH EDUCATION SECTION

Grand Ballroom, Hotel New Yorker

CONTINUATION OF WORKSHOP ON "PROBLEMS OF COMMUNITY ORGANIZATION AND HEALTH EDUCATION"

See page 1220

Small groups may be assigned to the following rooms for discussion of specialized problems:

East Room and Room 424

Parlors E and H

Parlor F

THURSDAY, 7:00 P.M.

SECOND GENERAL SESSION

Annual Banquet—Ballroom, Hotel Statler

Presiding: CHARLES F. WILINSKY, M.D., *President,* American Public Health Association.

Presidential Address. CHARLES F. WILINSKY, M.D.

Presentation of Forty Year Membership Certificates.

Announcement of New Officers, Resolutions.

Presentation of Sedgwick Memorial Medal Award.

Dancing. Refreshments. Informal.

FRIDAY, 9:30 A.M.

DENTAL HEALTH, MATERNAL AND CHILD HEALTH, MEDICAL CARE, AND PUBLIC HEALTH NURSING SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Keystone Room, Hotel Statler

Presiding: PHILIP E. BLACKERBY, JR., D.D.S., HAROLD C. STUART, M.D., EDWARD S. ROGERS, M.D., MARGARET L. SHETLAND, R.N., AND VLADIMIR K. VOLK, M.D.

AMERICAN ACADEMY OF PEDIATRICS STUDY OF CHILD HEALTH SERVICES

Highlights of the Study and What They Mean for the Improvement of Child Health. JOHN P. HUBBARD, M.D.

Increasing the Teaching of Well Child Care in Pediatric Education. PAUL A. HARPER, M.D.

Joint Planning by the A.A.P. and the A.P.H.A. for the Development of School Health Services. THOMAS E. SHAFFER, M.D.

FRIDAY, 9:30 A.M.

DENTAL HEALTH, MATERNAL AND CHILD HEALTH, MEDICAL CARE, AND PUBLIC HEALTH NURSING SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION (Cont.)

Public Health Nursing in Relation to Child Health Services. LUCILLE PEROZZI, R.N.

Dental Care for Children. JOHN T. FULTON, D.D.S.

A Demonstration Program for the Decentralization of Pediatric Education Services. GLIDDEN L. BROOKS, M.D.

General Discussion. WARREN R. SISSON, M.D.

ENGINEERING, FOOD AND NUTRITION, HEALTH OFFICERS, INDUSTRIAL HYGIENE, PUBLIC HEALTH EDUCATION, PUBLIC HEALTH NURSING, AND STATISTICS SECTIONS, AND CONFERENCE OF STATE SANITARY ENGINEERS

Joint Session—Ballroom, Hotel Statler

Presiding: M. ALLEN POND, WILLIAM H. SEBRELL, JR., M.D., STANFORD F. FARNSWORTH, M.D., WILLIAM G. FREDRICK, SC.D., DONALD A. DUKELOW, M.D., RUTH FREEMAN, R.N., FORREST E. LINDER, PH.D., AND W. W. TOWNL.

THE HEALTH OFFICER CALLS A STAFF CONFERENCE

Panel Discussion

Health Officer. HENRY F. VAUGHAN, DR.P.H.

Health Education MARY H. PARKS.

Engineering. HERBERT M. BOSCH.

Public Health Nursing. DOROTHY WILSON.

Food and Nutrition. ALICE H. SMITH.

Statistics. OSWALD K. SAGEN, PH.D.

Industrial Hygiene. KENNETH E. MARKUSON, M.D.

FRIDAY, 9:30 A.M.

EPIDEMIOLOGY SECTION

Third Session—Parlor 1, Hotel Statler

Presiding: JOHN J. PHAIR, M.D., *Chairman.*

The Serological Response in Brill's Disease. ROSS GAULD, M.D., HARRY A. FELDMAN, M.D., AND MERRILL J. SNYDER.

A Report on the Recent Outbreak of Jungle Yellow Fever in Panama. K. O. COURTNEY, M.D.

The Hemolytic Streptococcal Carrier State and Its Relation to Illness in Families. A. E. FELLER, M.D., GEORGE F. BADGER, M.D., JOHN H. DINGLE, M.D., RICHARD G. HODGES, M.D., WILLIAM S. JORDAN, JR., M.D., AND CHARLES H. RAMMELKAMP, JR., M.D.

Attack Rates Among Immigrants to Infested Human Populations. JOHANNES IPSEN, M.D.

Expectancy for Outbreaks of Poliomyelitis in Schools and Camps. THEODORE H. INGALLS, M.D., AND A. DANIEL RUBENSTEIN, M.D.

Preliminary Report of Epidemiological Studies on Poliomyelitis: Lansing Neutralizing Antibody and Antistreptolysin O Surveys of California Cities, Mexico, Pacific Islands, and the Far East. WILLIAM McD. HAMMON, M.D., GLADYS E. SATHER, AND NELL HOLLINGER, PH D.

LABORATORY SECTION

Fifth Session—Parlor 2, Hotel Statler

Presiding: HOWARD J. SHAUGHNESSY, PH D., *Chairman.*

ENTERIC DISEASE AND SANITATION

Transmission of Salmonella Infections. ERWIN NETER, M.D.

Field Trial of *Sh. flexneri III* Vaccine: Preliminary Report of Cultural Results. COMMANDER L. A. BARNES, M.S.C., AND R. C. DURANT.

Active Immunization Against Typhoid with the Hypospray Injector. HERBERT C. BATSON, PH.D., MAURICE LANDY, PH.D., AND ROBERT L. WALL.

A Comparative Study of the Media for the Detection of Streptococci in Water and Sewage. WALTER L. MALLMANN, PH.D., AND EDWARD B. SELIGMANN, JR.

Use of Enzyme Chymotrypsin for the Detection and Estimation of Residual Chlorine in Drinking Water. JOHN WYLLIE, M.D.

FRIDAY, 12:30 P.M.

MEETING OF ALL SECTION COUNCILS WITH THE EDITORIAL BOARD

Luncheon Session—Parlor 1, Hotel Statler

FRIDAY, 2:30 P.M.

ENGINEERING, EPIDEMIOLOGY, INDUSTRIAL HYGIENE, AND SCHOOL HEALTH SECTIONS, AND THE AMERICAN SCHOOL HEALTH ASSOCIATION

Joint Session—Grand Ballroom, Hotel New Yorker

Presiding: M. ALLEN POND, JOHN J. PHAIR, M.D., WILLIAM G. FREDRICK, SC.D., WARREN H. SOUTHWORTH, DR.P.H., AND DAVID A. VAN DER SLICE, M.D.

AIR SANITATION

Investigation of an Unusual Smog Incident in Donora, Pennsylvania, and Vicinity. JAMES G. TOWNSEND, M.D.

The Transmission of Hemolytic Streptococcal Infections in Infants' Wards with Special Reference to "Skin Dispersers." CLAYTON G. LOOSLI, M.D., MARGARET H. D. SMITH, M.D., JEWEL CLINE, AND LOIS NELSON.

Factors of Importance in the Use of Triethylene Glycol Vapor for Aerial Disinfection. WILLIAM LESTER, JR., M.D., O. H. ROBERTSON, M.D., SAUL KAYE, AND EDWARD W. DUNKLIN.

Penetration and Retention of Particulate Matter in Human Lungs in Relation to Particle Size. JACK H. BROWN, PH.D., KENNETH M. COOK, F. GREGG NEY, AND THEODORE F. HATCH.

The Present Status of the Control of Airborne Infections. Report of the Subcommittee on Air Sanitation of the Committee on Research and Standards. HOLLIS S. INGRAHAM, M.D.

FOOD AND NUTRITION SECTION

Third Session—Panel Room, Hotel New Yorker

Presiding: MARGARET C. MOORE, *Vice-Chairman.*

SOME PUBLIC HEALTH IMPLICATIONS OF THE STATE OF NUTRITION DURING PREGNANCY

Some Consideration in the Appraisal of Nutrition During Pregnancy. WILLIAM J. DARBY, M.D.

Relationship between Nutrition and Pregnancy as Observed in Recent Surveys in Newfoundland. GRACE A. GOLDSMITH, M.D.

Problems and Methods in Nutrition Services for Pregnant Women. BERTHA S. BURKE.

Discussion.

FRIDAY, 2:30 P.M.

HEALTH OFFICERS SECTION

Second Session— Penn Top, Part 1, Hotel Statler

Presiding: STANFORD F. FARNSWORTH, M.D., *Chairman.*

NEW LEGISLATION—EFFECTS UPON PUBLIC HEALTH PRACTICES

New Horizons in Hospital Planning. MARCUS D. KOGEL, M.D.

California's State Aid Program for Local Health Service. WILTON L. HALVERSON, M.D., AND ELLIS D. SOX, M.D.

Federal Health Legislation. ELTON D. WOOLPERT.

(Other speakers to be announced.)

LABORATORY SECTION

Sixth Session—East Room and Room 424, Hotel New Yorker

Presiding: HOWARD J. SHAUGHNESSY, PH.D., *Chairman.*

Experience with Gladstone Gelfoam Biopsy Procedure in Routine Tumor Diagnosis. ALFRED ANGRIST, M.D., AND ANN POLLAK, M.D.

Streptomycin in the Treatment of Meningitis Due to *H. Influenzae.* EMANUEL APPLEBAUM, M.D.

The Relative Stability of Schick and Dick Reactions. IRWIN S. NEIMAN, M.D.

Experimental Data Preceding and Following Ultraviolet Installation at Battey State Tuberculosis Hospital. H. M. VANDIVIERE, EARL J. SUNKES, D.P.H., AND C. EDWIN SMITH.

Bacteriological Aspects of the Study of Ultraviolet Irradiation in Large Central Rural Schools. HAZEL V. ROBERTS.

Mold Control by Germicidal Ultraviolet Energy. MATTHEW LUCKIESH, D.Sc., A. H. TAYLOR, THOMAS KNOWLES, AND E. T. LEPPELMEIER.

MATERNAL AND CHILD HEALTH AND PUBLIC HEALTH NURSING SECTIONS

Joint Session—Salle Moderne, Hotel Statler

Presiding: KATHERINE BAIN, M.D., AND RUTH FREEMAN, R.N.

TRENDS IN MATERNITY CARE

Natural Childbirth. HERBERT THOMS, M.D.

A Blueprint for Changing Concepts in Antepartum Care. EDWIN M. GOLD, M.D., HELEN M. WALLACE, M.D., AND MARGARET A. LOSTY, R.N.

Implications of New Ideas in Maternity Care for Public Health Nurses. MARION I. MURPHY, R.N.

Maryland Maternity Program. JOHN WHITRIDGE, JR., M.D.

FRIDAY, 2:30 P.M.

MEDICAL CARE AND STATISTICS SECTIONS

Joint Session—Penn Top, Part 3, Hotel Statler

Presiding: EDWARD S. ROGERS, M.D., AND FORREST E. LINDER, PH.D.

STATISTICAL ANSWERS TO ADMINISTRATIVE QUESTIONS IN MEDICAL CARE
ROUND TABLE

Moderator: EDWIN L. CROSBY, M.D.

What Are the Questions? DEAN W. ROBERTS, M.D., AND E. A. VAN STEENWYK.

How Can They Be Answered? A. W. HEDRICH, SC.D., AND MARGARET C. KLEM.

How Can Programs Be Appraised? E. RICHARD WEINERMAN, M.D.

PUBLIC HEALTH EDUCATION SECTION

Fourth Session—Parlors F and G, Hotel New Yorker

Presiding: A. HELEN MARTIKAINEN, *Chairman.*

MATERIALS CLINIC

A practical demonstration of the preparation and use of health education materials, sponsored by the Committee on Materials and Techniques.

Other Features of the Annual Meeting

In addition to a distinguished scientific program the 77th Annual Meeting offers many other things for the interest and information of delegates. The Technical Exhibitors, of whom there are more than 100, will bring them the latest information about products, services, and equipment available for use in modern public health practice. The Scientific Exhibit will depict for them current activities of national, state, and local official and non-official health agencies. The Association's Merit System Service, its Vocational Counselling and Placement Service, and its coöperative program with the National Health Council on Local Health Units will have consultation booths in the scientific exhibit area.

Health Education and Publicity Headquarters conducted for the Association by the National Publicity Council for Health and Welfare Services, will give delegates the opportunity to examine portfolios of materials on many subjects—venereal disease, tuberculosis, cancer, heart ailments, infantile paralysis, dental health, industrial health, eye health, mental health, accident prevention, sanitation, nutrition—to mention only a few. Portfolios on annual reports, bulletins, booklets, exhibits, radio, health cartoons and comics will also be included. This assemblage of significant health education materials from all parts of the country is regarded by numerous regular attendants at Association Annual Meetings as one of their most valuable features. At Boston last year one man came daily to the Headquarters when it opened at 8:30 A.M. and remained until it closed at 6:00 P.M, systematically going through the portfolios and taking copious notes. He said he spent a week torn by inner conflict—the scientific sessions or Health Education Headquarters—but the Headquarters won. Because the wish for them was expressed at previous meetings, this year lists of new health films and a bibliography of health education literature will be distributed.

The Motion Picture Theater, another favorite project with many delegates, will be operated by Mr. Thomas A. Stowell. Here all day long and every day during the convention, the newer health films may be viewed. And every day there will be a different program.

A demonstration of television techniques sponsored by the Committee on Motion Pictures of the Public Health Education Section will take place on Wednesday afternoon in a Broadway theater. This should concern everyone who has any responsibility for informing the public in health matters.

Of special interest is the extensive list of scientific trips planned by the New York Committee, many of which will include good old-fashioned sightseeing opportunities as well. The need for relaxation and entertainment will not be overlooked by the Committee nor will it fail to pay ample and generous attention to wives of delegates.

The 6 day post-convention trip to Bermuda, with two and one half days in the Islands, sponsored by the Association, is the perfect way to wind up the 77th Annual Meeting. (See the August JOURNAL, page 1068, for full details of the trip.)

Please note that the "Queen of Bermuda" leaves the Island at 3:00 P.M. November 2 and arrives in New York at 9:00 A.M. November 4.

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

Hotels	*Rooms with Bath*	
	Singles	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	5.50–10.00	8.00–14.00
Statler	4.50– 7.50	7.00–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

*The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949

(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
Double Room without Bath at $..... per day for ..... persons
Single Room without Bath at $..... per day
Suite at $..... per day for ..... persons

ARRIVING: OCTOBER .... Hour ..... LEAVING: OCTOBER .... Hour .....
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name .....
Street Address .....
City ..... State .....

Mail Direct to the Hotel of Your Choice.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

APPLICANTS FOR FELLOWSHIP

In accordance with the By-laws of the Association, the names of applicants for Fellowship are officially published herewith. They have requested affiliation with the Sections indicated. Action by the various Section Councils, the Committee on Eligibility, and the Governing Council will take place during the New York City Annual Meeting.

Health Officers Section

D. Keith Barnes, M.D., C.P.H., Director, Davis County Health Unit, Kaysville, Utah

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George W. Cox, M D , State Health Officer, Austin, Tex.

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Food and Nutrition Section

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APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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APPOINTMENT OF ENGINEERING RESEARCH ASSOCIATE

The Executive Board of the American Public Health Association announces the appointment of Maurice A. Shapiro, M.Eng., as Engineering Research Associate on the staff of the Engineering Section Project. Mr. Shapiro began his assignment in June.

Mr. Shapiro was graduated with a degree in biology from The Johns Hopkins University in 1941. He also received a Master in Engineering degree from the University of California. He served for 6 years in the U. S. Public Health Service where his work included assignments with the Georgia State Department of Health, the Florida State Board of Health, and 2½ years overseas with the Sanitary Engineering Division of the UNRRA Yugoslav Mission. After release from active duty with the U. S. Public Health Service, Mr. Shapiro served as Field Officer with the United Yugoslav Relief Fund of America on its public health training and rehabilitation program in Yugoslavia.

A major interest of the Engineering Section is the development of the administrative procedures applicable to environmental sanitation. Funds have been made available through the Division of Research Grants and Fellowships of the Public Health Service for the purpose of conducting field research in several phases of administrative activities. Mr. Shapiro's duties will be in connection with nation-wide research on program evaluation, position classification, and a time study.



MAURICE A SHAPIRO

A.P.H.A. REPRESENTATIVE ON FOOD AND NUTRITION BOARD

The appointment of Norman Jolliffe, M.D., of New York City, as liaison member of the Food and Nutrition Board of the National Research Council representing the A.P.H.A., is jointly announced by Frank G. Boudreau, M.D., Chairman of the Board, and Hugh R. Leavell, M.D., Chairman of the Executive Board, A.P.H.A.

Dr. Jolliffe who is a Fellow of the Food and Nutrition Section was recently appointed Director of the Bureau of Nutrition of the New York City Department of Health.

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Public Health Nurses for Health Department. 5 days, 37½ hour week; annual sick leave 24 days; annual vacation 12 days; 16 holidays; inservice training; merit system increases. Beginning salary $160 per month; with certificate $170; with degree and major in public health nursing $180. Write Mrs. Anna Amann, Director, Bureau of Public Health Nursing, 507 Carondelet Street, New Orleans, La.

Public Health Nurse as Supervisor of Nursing Service in the Out-Patient Department of the University of Kansas Medical Center. Salary $3,000; two weeks vacation; 12 days sick leave annually. Should have a B.S. degree in Nursing and several years' experience in clinics. Write: Director of Nursing Service, University of Kansas Medical Center, Kansas City, Kan.

Senior Industrial Hygiene Engineer—Minimum of 3 years' experience in industrial hygiene engineering. College graduate in engineering, preferably supplemented by graduate work in industrial hygiene engineering. $4,440 to start, advancing to $5,400. In addition to salary, up to $7.50 per diem for travel plus 6¢ a mile for use of car. Civil Service status, vacation, sick leave. Write: H. M. Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S. W. 11th Avenue, Portland, Ore.

Public Health Nurse, B.S. degree, one year of approved program of study in public health nursing, experience in general nursing under qualified supervision to build up nursing service in a growing planned parenthood center. Salary open, based on qualifications and experience; 40 hour week, retirement, vacation and sick leave. Write: Mrs. A. H. Thomas, R.N., Chairman of the Nursing Advisory Committee, 2501 Fair Avenue, Columbus, Ohio.

Field Physicians for Alaska Department of Health. Immediate openings on marine and mobile units and in Division of Communicable Disease Control. Minimum qualifications for Field Physician, M.D. and year's internship, Senior Field Physician, above plus year graduate training in pediatrics, obstetrics or public health. Base salary on board marine and mobile units, $435 and $535 per month plus subsistence. On land, $470 and $575 per month. Write: C. Earl Albrecht, M.D., Commissioner of Health, Box 1931, Juneau, Alaska.

Health Officers, young physicians—previous experience and training desirable but not essential. Must be licensed or eligible for license to practise in Virginia. Salaries: Junior Health Officers $5,736 to $7,098. Health Officers with training $7,200 to $8,052. Car allowance and official expenses in addition to salary. Advancement opportunities together with training program for desirable men. Write: State Department of Health, Richmond 19, Va.

Health Officer—population of health jurisdiction 40,000. Salary $7,200 to $9,000, travel allowance $75 per month. Position open September 1. Write: Roy R. Rucker, President, Lawrence-Wabash County Board of Health, Bridgeport, Ill.

Executive Director for information and counselling center for alcoholics; training and experience in psychiatric social work preferred; challenging opportunity to direct the development of an educational and treatment program for alcoholics, in a progressive upstate community; salary $5,000–$6,500, depending upon qualifications; Write: C. William Chilman, Council of Social Agencies, 618–622 Loew Theater Bldg., Syracuse 2, N. Y.

Director Public Health Nursing—City-County Health Department. Population 180,000, full-time staff 43; generalized program. Splendid opportunity for development of program, including training program for public health nurses. Must have good background of training and experience in supervision. Salary open. Write: Director, Kansas City-Wyandotte County Health Dept., Kansas City, Kans.

Sanitary Engineer—as Director of Sanitation Division, City-County Health Department. Community with population of 180,000. Must have background of experience in sanitary engineering and supervision of sanitation personnel. Salary

open. Write: Director, Kansas City-Wyandotte County Health Dept., Kansas City, Kans.

Public Health Nurse. Supervision; ideal rural-urban location. Generalized program; southeastern Michigan. Salary range $235–$250 plus travel. Minimum requirements one year's certificate. Write: Lenawee County Health Department, 119 W. Church, Adrian, Mich.

Experienced Qualified Public Health Nurses. Department established three years ago with a staff of 22 members. Population 75,000 rural and urban. Salary will depend on qualifications. The nursing service is generalized and under supervision. Write: Director, McLean County Health Department, Bloomington, Ill.

Laboratory Technician. Work at present consists mainly of the examination of milk specimens, although an increasing amount of the work will involve water analyses. Salary to depend on experience and qualifications. Write: Director, McLean County Health Department, Bloomington, Ill.

Medical Health Officer for Kelso, Wash. Salary $6,000 to $7,440 per annum. No experience required. M.D. degree and rotating internship necessary. Write: Dr. J. A. Kahl, State Director of Health, 1412 Smith Tower, Seattle, Wash.

County Health Officer, Kauai—2 years' experience as a physician, preferably in public health, graduation from a medical school of recognized standing including or supplemented by one year of internship in a recognized general hospital, and supplemented by one year of graduate training in public health; or any equivalent combination of experience and training. Salary range $6,780–$7,980 plus $25 monthly cost of living bonus.

County Health Officer, Maui—3 years of experience as a public health physician, following graduation from a medical school of recognized standing including or supplemented by one year of internship in a recognized general hospital, and supplemented by one year of graduate training in public health; or any equivalent combination of experience and training. Salary range $8,280–$9,280 plus $25 monthly cost of living bonus. For both the above positions write to: C. L. Wilbar, Jr., M.D., President, Board of Health, Territory of Hawaii, Honolulu 1.

Director, Maternal and Child Health. City-County Health Department. County of 116,000 population. Educational and cultural center. Pediatrician preferred. Starting salary $7,000 plus travel allowance. Write: Director, City-County Health Dept., Kalamazoo, Mich.

Public Health Educator, salary $295–$325; with Master's degree in Public Health or equivalent; experience in a recognized health service preferred. Position open now. Write: J. B. Eason, M.D., City Health Officer, 551 City Hall, Spokane 8, Wash.

Qualified Public Health Officer. Salary $5,000–$8,000 plus automobile allowance. Merit System rights and privileges; vacation; sick leave; retirement provisions under certain conditions. For further information write: Dr. Geo. W. Cox, State Health Officer, Austin, Tex.

Qualified Public Health Nurses, generalized public health nursing program in a semi-rural county, 68,000 population. Salary $3,000 plus automobile allowance. Write: Medical Director, T. W. Mahoney, M.D., 218 E. First St., Monroe, Mich.

Young Physician as Deputy Commissioner in well organized county health department. Salary $7,500 for person with training, plus expenses. Car furnished or will pay 8¢ mileage. New York State residence required. Write: F. E. Coughlin, M.D., Commissioner, Rensselaer County Dept. of Health, Troy, N. Y.

State District Health Officers: starting salary about $7,000; excellent Civil Service and Retirement System.

Training Center Personnel: Experienced, successful public health nurses, three; sanitary engineers, two; health educator, one. Good salaries.

Public Health Physicians: as Assistant Chiefs in the Divisions of Communicable Diseases, Venereal Disease Control and Local Health Administration. Civil Service; good Retirement Plan. Salaries begin at about $7,000. Write: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

Two staff Public Health Nurses: Large university town. Salary range now $220 to $265 per month. Automatic salary increases; cost-of-living adjustments semi-annually; adequate mileage allowance; state-wide retirement program.

Eating Establishment Sanitarian: Salary range now $260–$315 per month. Annual automatic salary increases; semi-annual cost-of-living salary adjustments; car allowance; liberal retirement program. Write: Personnel Division, City Hall, Madison 3, Wis.

Child Hygiene Supervisor, generalized supervisor and public health nurses. Population 248,000; suburban, industrialized

and rural areas; county seat 8 miles from Baltimore. Generalized service including modern school health program, rapidly expanding up to 50 field nurses. One month's vacation; 5 day, 35½ hour week; sick leave; retirement plan; 7¢ mileage allowance. Supervisor; degree and experience required: salary $3,200 to $3,700. Supervisor with special preparation in child hygiene: $3,500 to $4,000. Public Health Nurses, beginning salary $2,300 (for trainees) to $2,700, depending on experience and education; increases to $3,400. Write: Dr. William H. F. Warthen, Health Officer, Baltimore County Health Department, Towson 4, Md.

Public Health Nurse: B.S. degree, not over 35 years of age; 2 or more years full-time work in TB control work; salary $310 monthly; $50 allowance for own car; American citizen; ability to speak Spanish fluently desired.

Public Health Nurse: 30–35 years; 3 or more years' experience in general public health nursing; ability to speak Spanish. Salary $275 monthly; $50 allowance for own car. Write: C. R. Kroeger, M.D., County of Imperial, El Centro, Calif.

Full-time City Health Officer for city of 100,000. Eligibility for licensure in the State of Connecticut; degree in public health; or qualifications prescribed by the Public Health Council of Connecticut Department of Health. Also acts as Registrar of Vital Statistics. Write: Board of Commissioners of Public Health, Waterbury, Conn.

Opportunities in Illinois

The following opportunities are available in Illinois:

State District Health Officers. Starting salary about $7,000; excellent Civil Service and Retirement System.

Training Center Personnel. Experienced, successful public health nurses, three; sanitary engineers, two; health educator, one. Good salaries.

Public Health Physicians. As Assistant Chiefs in the Divisions of Communicable Diseases, Venereal Disease Control, and Local Health Administration, Civil Service; good Retirement Plan. Salaries begin at about $7,000.

Write to: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

POSITIONS WANTED

Bacteriologist and Immunologist, female, several years' responsible experience with research and publications at leading Boston institution. Emphasis on immunology. Background in chemistry. M.S. degree shortly. College teaching experience. **Box L-11,** Employment Service, A.P.H.A.

Nutritionist: B.S. and M.S. degrees. 12 years of varied experience in nutrition, diet-therapy and teaching. Available now. A.D.A. member. Excellent references. Write: **Box N-1,** Employment Service, A.P.H.A.

Ph.D. (bacteriology), M.P.H., male, 8 years experience as Public Health Laboratory Director; 8 years experience in teaching in medical school. Interested in responsible position in public health laboratory, teaching or health education. Additional experience in health education and sanitation. Write: **Box LD-5,** Employment Service, A.P.H.A.

Veterinarian, age 32, experienced in public health food inspection and sanitary control work, desires position with public health agency. Write: **Box V-9,** Employment Service, A.P.H.A.

Health Educator—M.A. in health education (Teachers College, Columbia) 32, male, married. Two years working experience in health education with official and voluntary agencies including teaching: 5 years army officer in charge of group and public relations work in Special Service Division. Interested in position with official or voluntary agency or teaching. **Box HE - 7,** Employement Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—(a) Professor, or associate professor, health education; university school of health; Ph.D. or M.D.; thorough background of training in health education required; experience in public school work desirable. (b) Public health physician to serve as health commissioner; town of 75,000; staff of seventeen, well equipped offices, laboratory; Middle West. (c) Public health physician for administrative post, national health organization; someone qualified to carry considerable responsibility required; headquarters, university center. (d) Young woman physician to join staff of student health department; young women's college; East. (e) Physician to direct program, public school system; winter resort town of 165,000; Southwest. (f) Public health physician; city-county department; Pacific Northwest. (g) Student health director; university having enrollment, 9,000; excellent facilities for developing efficient program; well staffed department, university medical center, city of 600,000. PH9–1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Assistant director of research; duties rather broad involving experimental work (physical and bacteriological studies), serving as consultant; degree in Sanitary Engineering or Public Health required; large manufacturing company. (b) Executive assistant; health organization; experience in public relations desirable; university center; Southeast. (c) Health educator; association of voluntary health agencies; new development; town of 40,000; Northeast. (d) Health educator and, also, health education consultant; state department of health; interesting opportunities. PH9–3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Director, public health nursing program; graduate degree required; eastern university. (b) Public health and, also, junior public health nurses; newly created positions; county health department, California; salaries, $3,300–$3,840, $2,640–$3,100, respectively. (c) Director, visiting nurse association, to succeed director, 12 years' tenure; staff, 14; university town. Middle West. (d) Field nurse, educational health program; large industrial company; considerable traveling; Middle West. (e) School nurse; public school system; small town located on coast of California; duties directing school health program. (f) Several public health nurses; generalized public health program; semi-rural county near several large cities and university medical centers; Middle West. PH9–4 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Public health administrator; M.S., M.D., M.P.H., eastern schools; several years, director of public health program, foreign country; eight years, professor of preventive medicine and public health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Dentist; qualified public health and children's dentistry; B.A., D.D.S., M.A., Ph.D., leading schools; year's residency in children's residency; teaching experience; research has been particularly concerned with administrative and educational problems in conection with children's dental programs in under-developed areas; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Sanitarian; B.S., Civil Engineering; past eight years, sanitary engineer, metropolitan health department; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.P.H., eastern university; past several years, health educator, consultant and coördinator of health education activities, public schools; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

Public health nurse seeks administrative position or teaching on university level; B.S., M.P.H.; several years, staff nursing; six years, director of nursing and health education, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

RECOMMENDED PRACTICES FOR THE CONTROL OF POLIOMYELITIS

A GROUP of persons representing all aspects of poliomyelitis control met recently at Ann Arbor, Mich., at the request of the National Foundation for Infantile Paralysis. To answer the needs frequently expressed by health officers, hospitals, physicians, and others for an up-to-date, authoritative reference and guide for meeting practically the many problems related to the control of poliomyelitis, this group agreed on the following recommendations, which have also been endorsed by the executive committee of the Association of State and Territorial Health Officers.

The group preparing these recommendations included Drs. Gaylord W. Anderson, Charles Armstrong, Albert E. Casey, Haven Emerson, Thomas Francis, Jr., Vlado A. Getting, A. L. Gray, William McD. Hammon. Dorothy M. Horstmann, Herbert R. Kobes, Kenneth S. Landauer, Kenneth F. Maxcy, Joseph C. Molner, Thomas M. Rivers, Joseph E. Smadel, Hulda E. Thelander, Franklin H. Top, James Watt, Harry M. Weaver, and James L. Wilson.

THE DISEASE

1. *Recognition of the disease.*
A highly prevalent infection of which only a small fraction of the cases is clinically identifiable. In its recognizable form an acute illness, usually febrile, with early varying symptomatology, but usually with headache and almost always a characteristic stiffness of neck and spine that justifies an examination of spinal fluid. In about half such cases a lower neurone paralysis develops in first few days of illness which shows a marked tendency for spontaneous improvement after it has reached its height. If first seen after acute stage has passed, diagnosis depends upon detection of a flaccid paralysis characteristically irregular in its involvement of muscle or muscle groups. Diagnosis in non-paralytic cases depends upon detection of a clinical picture compatible with the illness plus demonstration of moderate increase in cells in spinal fluid. A form of illness presumptively poliomyelitis (abortive) presenting only vague symptoms and without signs referable to the central nervous system is of frequent occurrence during epidemics.

2. *Etiologic agent.*
The poliomyelitis virus. Several immunologically distinct types have been identified.

3. *Source of infection.*
Pharyngeal and fecal discharges of infected persons, frequently those not suffering from a clinically recognized attack of the disease.

4. *Mode of transmission.*
Close association with infected persons accounts for the great majority of cases. Outbreaks attributable to milk have been rare and limited. Although flies have been found to be contaminated with the virus, there has been no reliable evidence of spread by insects, water, food or sewage.

5. *Incubation period.*
Usually 7 to 14 days. (May be from 3 to 35 days.)

6. *Period of communicability.*
Apparently the period of greatest communicability is covered by the latter part of the incubation period and the first week of the acute illness.

7. *Susceptibility and immunity.*
Susceptibility to infection is general. Immunity is acquired by infection which may have been clinically inapparent. The duration of immunity is unknown, but second attacks are rare.

8. *Prevalence.*
Infection is prevalent throughout the world. Paralytic cases have been apparently more frequent in the temperate zones. Occurs both sporadically and in epidemics at irregular intervals, with the highest incidence in summer and early fall. In the United States an annual incidence of 10 paralytic cases per 100,000 population is ordinary, but there is a wide variation in incidence from year to year and region to region. Children from 1 to 16 years of age are more frequently attacked than adults. In several countries, including the United States, older children and young adults constitute a

higher proportion of reported cases than formerly. Even during epidemics the incidence of paralytic cases has rarely exceeded one per thousand population.

9. *Methods of control.*

A. Preventive measures: None

B. The infected individual, contacts and environment:

1. Recognition of the disease and reporting: Clinical manifestations assisted by microscopic and chemical examination of the spinal fluid if lumbar puncture is performed. In reporting, paralytic or non-paralytic should be specified. A clear separation between these two groups of cases as reported permits a closer comparison of incidence between localities and with past experience.
2. Isolation: For one week from date of onset, or duration of fever if longer.
3. Concurrent disinfection: Nose and throat discharges and feces are infectious and should be disposed of as quickly and safely as possible. Articles soiled therewith should be promptly disinfected.
4. Terminal disinfection: None.
5. Quarantine: Quarantine of unproven value. Modified quarantine restricting the movement of intimate contacts for 7 to 14 days may be desirable in certain circumstances. (In Great Britain 21 days of exclusion from school of child contacts.)
6. Active immunization: None. Passive immunization is not recommended.
7. Investigation of sources of infection: Search for and expert diagnosis of sick children to locate unrecognized and unreported cases of the disease.

C. Epidemic measures:

1. General notice to physicians of the prevalence or increase of incidence of the disease, description of usual characteristics of onset and necessity for diagnosis and medical care, particularly for bed rest of patients, and information to the public at large on similar matters.
2. Isolation in bed of all children with fever, pending diagnosis.
3. Education in such technique of bedside nursing as will prevent distribution of infectious discharges to others from patients isolated at home.
4. Protection of children so far as practicable against unnecessary contact with persons other than their usual associates
5. Postponement of elective nose or throat operations or dental extractions.
6. Avoidance of excessive physical strain (e.g., violent exercise) in children during an epidemic or in case of known exposure.
7. Avoidance of unnecessary travel and visiting, especially of children, during high prevalence of the infection.

D. International measures: None.

THE PATIENT

1. *Reporting.*

All obvious and suspect cases should be promptly reported. As soon as possible all of these cases should be classified as paralytic or non-paralytic. Cases which are finally diagnosed as presumptive (abortive) poliomyelitis should not be included in the final tabulation of cases by the health officers. For guidance of health officers and physicians the following is proposed:

Diagnostic criteria of paralytic or non-paralytic poliomyelitis should generally include three or more of the following:

(1) history compatible with poliomyelitis
(2) fever
(3) stiff neck and/or stiff back
(4) 10 to 500 cells per ml. of spinal fluid taken during the acute or early convalescent period of the disease
(5) spinal fluid protein elevated above normal limits
(6) demonstrable muscle weakness or paralysis

Cases which present only (1) history compatible with poliomyelitis, and (2) fever, should be classified as presumptive (abortive) poliomyelitis.

Paralytic cases are defined as those in which definite weakness or paralysis has been detected and persisted during at least two examinations with an interval of at least several hours. Results of an examination for paralysis of muscles of the extremities or trunk may be very unreliable during the period of muscle tenderness or "spasm."

2. *Hospitalization.*

A. Admission to general hospital.

Patients with acute poliomyelitis, or presumed to have acute poliomyelitis, are admissible to a general hospital provided that appropriate isolation precautions are employed. No special isolation or "pest" facilities are necessary.

B. Nursing care.

During isolation, or hospitalization after the period of isolation, there is no need for a special duty nurse for each patient. Special duty nurses should be employed with regard only to the medical condition

of the patient, and to the number of patients they can properly handle.

C. Isolation technique in hospitals.

The isolation procedures used for the care of acute polimyelitis patients are similar to techniques used in the hospital care of other communicable diseases, namely:

1. Segregation of patients having the same disease, preferably in single rooms or small wards. Patients can be cared for in large wards.
2. Washing of linen in the hospital laundry. Ordinary precautions for handling articles from infected persons are sufficient.
3. Sterilization of eating utensils after use.
4. Availability of toilets or hoppers in each room, small ward or large ward.
5. Availability of hand washing facilities in each room, small ward or large ward.
6. Use of gowns by physicians when examining a patient and by nurses when caring for a patient, particularly while bedpanning.
7. Disposal of excreta of patients by placing in toilet or hopper as soon after passage as possible. The bed pan should be washed out if the utensil is used for a single patient, but when used in wards bed pans should be sterilized each time the utensil is used. No special treatment of feces from polio patients is necessary.
8. Hand washing with ordinary soap and water should be practised following examination of patients and after bedpanning a patient.

When toilet or hopper is situated outside the room or ward, a single pan should be covered, carried out and contents disposed of as above (7); multiple pans are best cared for by placing on a cart and transferred to the disposal unit and taken care of as above (7).

D. Care at home.

Patients may be cared for at home if home facilities and medically supervised care are adequate; or may be discharged to such home when there is no medical indication for further observation or treatment in the hospital.

Admission to or care in a hospital for isolation purposes only is not usually indicated.

E. Care of suspect cases.

It is recommended that suspect cases when admitted to a hospital should be segregated when possible from known cases until the diagnosis has been established or the patient is discharged as well.

F. Importation of patients.

In order that the best possible facilities be used for the care of cases of poliomyelitis, patients may be sent from their own home communities to a hospital in another community. The available evidence indicates that such importation of polio patients into a hospital in a community where poliomyelitis is not prevalent does not affect the incidence of the disease in the hospital community.

G. Transportation of patients.

Transportation of patients from one health jurisdiction to another may be carried out under proper conditions, such as transportation in an ambulance or a private vehicle. A common carrier should not be used. Transfer should be carried out with the knowledge and the consent of the health officers in the jurisdiction to and from which the patient is being transferred.

No special treatment of ambulances after their use by polio patients is necessary.

THE COMMUNITY

These recommendations were formulated with the emphasis on avoiding the possible effect of disturbing or altering unnecessarily the normal pattern of life in the community. Whatever is done to upset the usual routine of children in a household or adults in their occupations is likely to bring more trouble than good.

1. *Schools.*

Recommendation: Public and private schools should not be closed during an outbreak of poliomyelitis, nor their opening delayed, except as noted below:

Reason: The closing of schools, or the delay of their opening, has not affected the course of outbreaks of poliomyelitis; moreover, such action has often resulted in panic on the part of the public. The decision to open school as usual should be announced well in advance jointly by the superintendent of schools and the health officer, in collaboration with the local medical society. Early in the season the state departments of education and public health should issue a joint statement to which local authorities can refer for support. This statement should be issued in collaboration with the State Medical Society.

Exceptions:

1. Schools to which children are transported in buses from widely separated areas may be delayed in opening, if such action will prevent other close contacts among chil-

dren. If these schools are not opened, such action is justifiable only when other close contact among these children is not permitted in such places as theaters, picnics, playgrounds, swimming beaches or Sunday schools.

2. Boarding schools (excluding colleges and universities) should delay opening sessions if an outbreak of poliomyelitis exists in the area where the school is located and if the children are thus prevented from coming into the area from regions where the disease is not prevalent.
3. Nursery schools may be continued or closed depending upon the particular circumstances. Parents, if both are employed, may prefer to send their children to a nursery school. Parents who have facilities at home to limit contacts of young children with other children should be encouraged to keep pre-schoolers at home.

2. *Camps.*

Summer camps should be opened as usual if there is no outbreak of poliomyelitis in the area in which the camp is located.

Children should not be admitted from areas where an outbreak exists.

Inasmuch as there is no evidence that retention of children in camps where poliomyelitis exists leads to increased hazard, whereas dismissal from camps may lead to spread to other communities, it is further recommended that if a case of poliomyelitis occurs in a camp the following procedure be instituted:

1. Retention of all children and staff at the camp for 14 days after last contact with the case or until the usual closing date of camp.
2. Modified and supervised activity to prevent excessive exercise and undue mixing in group activities.
3. Careful medical check-up on all children daily.
4. Isolation of all children with fever or any suspicious signs and symptoms.
5. Discontinuance of admission of new children to camps in which poliomyelitis cases have been recently diagnosed.

Day camps should follow the same recommendations as those above pertaining to schools.

3. *Places of recreation and amusement.*

It is recommended that health officers do not take action to close or prevent the operation of places of recreation or amusement, such as fairs, circuses, theaters, swimming pools, or beaches, provided these are properly operated. However, the attendance of children at such places should be discouraged.

Any theoretical advantage that might be gained by closing such facilities is offset by the undesirable results of disruption of community life.

NEWS FROM THE FIELD

HOOVER COMMISSION MEDICAL ACTIVITIES REPORT TO THE CONGRESS

THE February issue of the *Journal* carried a summary of the report of the Task Force Committee on Federal Medical Services to the Commission on Organization of the Executive Branch of the Government, commonly known as the Hoover Commission. It is pertinent now to present a summary of the section on Medical Activities of the Commission's report to the Congress March, 1949.

For the immediate purpose of uniting the functions now in five major agencies so as to eliminate overlap, waste and inefficiency, and in order to achieve the critically necessary objectives to provide better medical care for the beneficiaries of the federal government's medical programs, to create a better foundation for training and medical service in the federal agencies, to reduce the drain of doctors away from private practice, to provide better organization for medical research, and to promote a better state of medical preparedness for war, *the Commission recommends:*

1. The establishment of a United Medical Administration into which would be consolidated most of the large-scale activities of the federal government in the fields of medical care, medical research, and public health (including preventive medicine).

In reaching the conclusion that medical services should be unified, the Commission had the aid of extensive surveys by its distinguished task forces on Medical Services and on the National Security Organization. The recommendations set forth in this report "are generally in accord with" the original task force reports. [Note: On this point some task force members disagree.]

The task force was instructed to base its original report on the premise that "the Commission will recommend a Cabinet Department embracing health, education and security." However, in view of the size of the medical operations of the federal government and the extreme dissimilarities among the activities which would have composed such a department, the task force was later requested to consider the advisability of placing medical service functions in a single agency. Its supplementary report favors a separate United Medical Administration.

The report further states that—

The advantages of unification of federal medical services include:

a. The general standard of Federal medical care would be improved.
b. There would be central supervision of the major Federal medical care, public health, and medical research activities.
c. Construction costs could be standardized and reduced.
d. Federal hospitals could be utilized to the fullest extent by eliminating present distinctions as to the particular types of beneficiaries for which each can care.
e. The medical manpower at the call of the Federal Government could be used to the fullest extent, and present deficits in skilled personnel could be greatly reduced.
f. The need for any draft of medical manpower in time of peace could be greatly lessened.
g. The cost of health and medical services would be clearly identified and known to Congress.
h. The facilities of private hospitals and the skills of physicians in private life and in the universities could be utilized far more effectively than they are now.

The Commission recommends:

2. That the Administrator of the United Medical Administration should be assisted by an advisory board, consisting of the Surgeons General of the Army and Navy, the Air Surgeon, and the Administrator of Veterans' Affairs or his representative. This board should advise the Administrator on policies.[1]

[Note: Public health is not represented on the Board.]

3. That an Administrator and three Assistant Administrators be appointed by the President with the advice and consent of the Senate. All other officials in the Administration should be appointed by the Administrator and due consideration should be given to the promotion of properly qualified personnel in the career service.

The Administrator should report directly to the President. He should be the ablest medical and health administrator whose services

[1] Chairman Hoover and a Commissioner dissent in providing that the board should be "advisory" only.

can be obtained by the Government. The Administration should be manned by career personnel drawn initially from the various agencies whose functions are recommended for transfer to the new United Medical Administration, supplemented by medical officers whom the armed services would have the right to detail for training and rotation. In addition, the Administration should utilize to the full medical personnel of proved competence in private practice and in the universities.

The Commission recommends:

4. That the functions, facilities, and the personnel for medical care of the following activities should be transferred to the United Medical Administration [2]:

   a. The general hospitals of the armed forces in the continental United States (except a medical center for each of the three services), and station hospitals (certain of which the Navy calls "dispensaries") in the continental United States, except those at outlying posts so located that other hospitals of the United Medical Administration would not be near enough to provide the care required.
   b. The hospital functions of the Veterans Administration *in toto,* including the outpatient services in the field offices of the Veterans Administration.
   c. The four nonmilitary hospitals in the Canal Zone.
   d. The hospitals of the Public Health Service.
   e. The functions, facilities, and personnel of the Public Health Service.

St. Elizabeths Hospital, now in the Federal Security Agency, should either be transferred to the District of Columbia or included in the new Administration.

Hospital functions which should not be transferred are those of the Bureau of Indian Affairs and of the Bureau of Prisons, the armed forces station hospitals, above excepted, and armed forces hospitals overseas, and other small hospital functions such as those incident to the operations of the Tennessee Valley Authority and the Atomic Energy Commission. The Indian and prison hospitals should, however, be assisted in procuring staff by professional personnel from the United Medical Administration.

The Commission recommends:

5. That Congress should define the beneficiaries entitled to medical care from the Government and prescribe how this care should be given.
6. That the present inconsistency in policy between the Federal hospital construction program and Federal aid to non-Federal hospitals under the Hill-Burton Act should be ended.
7. That control of medical policy in the armed services should be exercised by the Secretary of Defense.
8. That the United Medical Administration should give constant attention to necessary measures for national defense.

By giving continued attention to the wartime medical needs of the country, including the status and availability of medical personnel and the relative facilities of Government and civilian hospitals, the overwhelming shortage of doctors which war would create could be met by optimum utilization of those we have.

The Commission further recommends:

9. That medical and other technical personnel in the Administration should be on a career service basis.
10. That a survey should be made to determine the needs for emergency aid to medical schools.
11. That the highest priority in importance should be given to research, preventive medicine, public health and education.

[2] The Concluding Report of the Commission differs slightly in including the following item: Transferring to the agency the drug inspection activities of the Food and Drug Administration.

NATIONAL SANITATION CONFERENCE

On June 14 and 15, 1949, 85 persons attended a conference on a national sanitation program held under the auspices of the National Sanitation Foundation at the Michigan School of Public Health. The following 28 organizations concerned with problems of sanitation and health education were represented; the A.P.H.A. by 3 persons from each of 3 sections on Health Education, Public Health Engineering, and Public Health Administration:

American Association for Health, Physical Education and Recreation
American Association of Industrial Physicians and Surgeons
American Hospital Association
American Industrial Hygiene Association
American Institute of Planners
American Medical Association
American Public Health Association
American School Health Association

American Society of Civil Engineers
American Veterinary Medicine Association
American Water Works Association
Association of Schools of Public Health
Association of State and Territorial Health Officers
Conference of Municipal Public Health Engineers
Conference of Professors of Preventive Medicine
Conference of State and Provincial Public Health Laboratory Directors
Conference of State Directors of Health Education
Conference of State Sanitary Engineers
Federation of Sewage Works Associations
International Association of Milk and Food Sanitarians
National Association of Housing Officials
National Association of Sanitarians
National Committee of Health Council Executives
National Education Association of United States
National Health Council
National Organization for Public Health Nursing.
National Safety Council
United States Public Health Service

"Social sanitation as a way of life" was the predominating theme of the speakers, who included in addition to General Mark Hollis, U.S.P.H.S., Drs. Haven Emerson, Henry F. Vaughan, and Nathan Sinai, and Walter F. Snyder, Executive Director of the Foundation. Sanitation was defined as a quality of living expressed in a clean home, a clean farm, a clean business and industry, a clean neighborhood and a clean community.

A resolution was unanimously adopted to the effect that sanitation as a way of life, in addition to its accepted health benefits, has social, economic, psychologic and moral values as well. The full benefits of sanitation may be obtained only through the continuing and joint efforts of the total community. A further resolution declared the need for an expanded nation-wide sanitation program with efforts directed toward the development of community-wide educational programs placing special emphasis on individual and group participation. The conference requested that the National Sanitation Foundation, in collaboration with official and voluntary organizations and agencies, stimulate and further develop such a nation-wide sanitation program.

One of the discussion groups emphasized that local health departments must take leadership and its personnel be educated to accept the broader concept of sanitation, which is more than disease control. As a way of life it includes social, mental, and sociologic, as well as physical sanitation. Haven Emerson said "In the century that follows, success will be measured by understanding and willing participation, each for each other, a comradeship for the health of all, a true social sanitation in which the professions of public health and the people served are mutually involved."

The following officers of the Foundation were reëlected:

Chairman: Mark Hollis, Assistant Surgeon General, U. S. Public Health Service
Vice-Chairman: C. W. Klassen, Chief Sanitary Engineer, Illinois Department of Public Health
Secretary: Harry E. Miller, Michigan School of Public Health

INGRAM AS TEACHER AND EDITOR

William T. Ingram, Engineering Field Associate of the American Public Health Association for the past 2½ years, in charge of the Engineering Section Project, resigned on May 1 to become Associate Professor of Public Health Engineering, New York University. He remains with the Association in a consultant capacity.

Mr. Ingram has also recently taken on editorial responsibilities with the new sanitation monthly entitled *Modern Sanitation*. Vol. 1, No. 1, of this appeared in May, 1949, "as a magazine slanted wholly and exclusively to the field of sanitation and industrial housekeeping," and going to the "sanitation specialist whatever his title or position."

Mr. Ingram, with the title of editorial director, is chairman of an editorial board made up of:

J. Lloyd Barron, C.E., Manager, Sanitation Department, National Biscuit Company
Charles A. Clark, General Foods Corporation
W. L. Mallmann, Ph.D., Professor of Bacteriology and Public Health, Michigan State College
Sol Pincus, Consulting Sanitary Engineer
Edward M. Searls, Ph.D., Entomologist, Sealtest, Inc.
Arthur C. Stern, M.E.,M.Sc., Chief Engineer, Division of Industrial Hygiene and Safety Standards, New York State Department of Labor

Modern Sanitation is edited by James V. Cawley, and is published by Powell Magazines, 855 Avenue of the Americas, New York 1. Annual subscription $2, 2 years $3.

LABORATORY REFRESHER COURSES

The Laboratory Division of the Public Health Service's Communicable Disease Center announces the following refresher courses in laboratory diagnosis during 1949:

Laboratory Diagnosis of Parasitic Diseases: September 12–October 21
Laboratory Diagnosis of Bacterial Diseases: Part 2, General Bacteriology October 31–December 2
Laboratory Diagnosis of Rabies: November 14–18.
Advanced Enteric Bacteriology: December 5–16

Information and applications from the Chief, Laboratory Division, Communicable Disease Center, 291 Peachtree Street, N. E., Atlanta, Ga.

IOWA PUBLIC HEALTH ASSOCIATION

The 22nd Annual Meeting of the Iowa Public Health Association was held in Des Moines, June 2–3. Items on the program included discussions of community health councils, various methods of publicity, including radio, health exhibits, visual aids, schools, and newspapers, a study of Iowa's health needs, public health statistics, child guidance, safety, sanitation, health films, merit system affairs, dental services, and nutrition.

Newly elected officers include:

President: I. H. Borts, M.D.
President-Elect: Sophie Fevold, R.N.
Vice-President: Paul Bolton
Secretary-Treasurer—L. E. Chancellor

The Iowa Association appointed a committee to make arrangements and send invitations to public health personnel in the central states to meet in Des Moines in 1950 as a middle states conference on public health. The purpose of such a conference would be to provide a professional meeting covering all public health interests in the area, with a view to the eventual formation of a middle states branch of the American Public Health Association. The successful development of the Western and Southern Branches of the A.P.H.A. was noted and the desirability of affording annually in the middle states area opportunities to meet with special talent of the best grade, making such meetings accessible to most of the public health workers in this area.

DR. WISHIK REPLACES DR. BAUMGARTNER ON A.P.H.A. CHILD HEALTH COMMITTEE

Leona Baumgartner, M.D., who has assumed the position of Associate Chief of the U. S. Children's Bureau, Washington, has resigned as Chairman of the Association's Committee on Child Health. She has been succeeded as Chairman by Samuel H. Wishik, M.D., Director of the Bureau of Child Health, New York City Department of Health.

NURSING IN POLIO EPIDEMICS

The National Foundation of Infantile Paralysis has made grants totaling nearly $1,000,000 to 3 nursing agencies for the purpose of assuring adequate nursing services in possible polio epidemics. The National Organization for Public Health Nursing, with the participation of the League of Nursing Educa-

tion, was granted $64,700 to continue an advisory service to public health agencies and hospitals in nursing care of the infantile paralysis patient and planning for possible epidemics. The grant also provides for helping schools in teaching proper posture in nursing and for consultation services in orthopedic nursing.

The American Nurses' Association's grant of $10,000 is for the purpose of establshing and maintaining an inventory of professional registered nurses, large numbers of whom need to be recruited during polio epidemics. The Committee on Careers in Nursing, sponsored by 6 national nursing organizations, received $18,500 to assist in its recruitment program for student nurses.

NEW CINCHONA REVIEW

The Cinchona Products Institute (10 Rockefeller Plaze, New York), in June began the publication of *Cinchona Review* under the editorship of Albert Hemming, M.B., M.R.C.S. Its purpose is to bring together for practising physicians, progress in malariology which is mainly reported in specialized journals which few practitioners see regularly. It promises to cover the entire scope of cinchona alkaloids and will have abstracts of outstanding papers, news of conferences, academic appointments, and activities of learned societies and individuals.

WEST VIRGINIA PUBLIC HEALTH ASSOCIATION

The West Virginia Public Health Association met at Charleston in June in connection with the 25th Annual State Health Conference with about 450 participating. The association reported a banner year as to membership. It now has over 400 members, an increase of more than a third over the previous year. The officers for 1949–1950 are:

President: O. R. Lyons, sanitarian, Monongalia County Health Department
Vice-Presidents: Olive Ward Snyder, public health nurse, Marion County Health Department; A. Glenn Evans, M.D., Marion County Health Officer
Treasurer: Annette King, State Department of Health

NORTHERN CALIFORNIA PUBLIC HEALTH ASSOCIATION

The following officers were elected at the June 10 Annual Meeting of the Northern California Public Health Association:

President: C. Martin Mills, M.D., Commissioner of Health, Richmond
President-Elect: Levitte Mendel, Health Education Consultant, State Department of Public Health, San Francisco
Vice-President: John R. Philp, M.D., Health Officer, Merced County Health Department, Merced
Secretary: L. Amy Darter, Supervising Bacteriologist, State Department of Public Health, Berkeley
Treasurer: Ramona Hopkins, Director of Public Health Nursing, Alameda County Health Department, San Leandro
Representative on A.P.H.A. Governing Council: Harold F. Gray, Lecturer on Public Health, University of California, Berkeley
Representative on Regional Board, Western Branch, A.P.H.A.: Nina Simmonds, Sc.D., Assistant Clinical Professor of Nutrition, University of California, San Francisco

PROGRESS REPORT ON THE HOSPITAL SURVEY AND CONSTRUCTION PROGRAM

According to the *Washington Report on the Medical Sciences,* the accumulated report to May 31 on progress under the Hill-Burton Hospital Survey and Construction program shows that 387 projects have received final approval and 410 initial approval for a total estimated cost of $483,000,000. Of this sum, the federal contribution will be $149,000,000. Every state and territory now has had at least one project application approved with the exception of Delaware and the District of Columbia. The leading states with reference to dollar value of finally approved projects are Pennsylvania, Tennessee, North Carolina, and Texas.

MICHIGAN DEPARTMENT REORGANIZED

The Michigan State Department of Health, under its new Director, Albert E. Heustis, M.D., has been reorganized into 7 divisions where formerly there were 16 bureaus. A Division of Local Health Services, under J. K. Altland, M.D., has been created to bring together under one administrative head the state services provided to people as individuals, and will include the former dental, public health nursing, and local health bureaus.

Other divisions are Tuberculosis and Venereal Disease Control; Disease Control, Records and Statistics, which combines the former disease control and records and statistics in order to correlate disease control with morbidity and mortality reporting; Engineering; Industrial Health; Laboratories; and Administrative Services.

STANDARD MILK ORDINANCE REVISED

The revised milk ordinance recommended by the U. S. Public Health Service, issued in multilithed form in April, 1949, represents the first comprehensive revision of this model ordinance since 1939. Copies are available from the U. S. Public Health Service. The new form of the ordinance has been approved by the Service Milk and Food Sanitation Advisory Board, and will be incorporated in the 1950 edition of *Public Health Bulletin* 220. The revision is based on changes proposed by state and local health agencies, the dairy industry, equipment manufacturers, and the staff of the U.S.P.H.S. Particular attention was given to the changes suggested by the Committee on Milk Regulations of the International Association of Milk and Food Sanitarians, with a view to making the ordinance acceptable not only to areas already operating under the Service ordinance but also to those operating under other standards. A discussion of the more important amendments made to the ordinance appeared in the *Journal of Milk and Food Technology* for May–June, 1948, and reprints are available from U.S.P.H.S.

ILLUMINATING ENGINEERING SOCIETY ELECTS NEW OFFICERS

The Illuminating Engineering Society announces the election of the following officers:

President: Charles H. Goddard
Vice-President: S. G. Hibben
General Secretary: A. H. Manwaring
Treasurer: E. M. Strong

The elections are effective October 1, 1949.

Professor Strong is also Chairman of the Joint Committee on Research Problems in Illumination composed of members of the Association and the Illuminating Engineering Society.

WEST VIRGINIA STATE BOARD OF HEALTH

West Virginia has a new 9 member State Board of Health created by the 1949 Legislature in a bill sponsored by the state medical society. The 9 members, appointed by the Governor for terms ranging from 1 to 9 years, include 2 physicians, a surgeon, an osteopathic physician, a dentist, pharmacist, a hospital representative, and 2 citizen representatives. The executive officer of the board is the State Health Commissioner, Newman H. Dyer, M.D., whose title has been changed to state director of health.

YALE EXPANDS ALCOHOLISM CLINIC

Simultaneous opening of a state supported outpatient clinic in New Haven and the reorganization of the Yale Plan Clinic have increased Connecticut's facilities for the care and study of alcoholism. The Yale Clinic has been moved to the Yale Laboratory of Applied Physiology. Its services for the treatment of alcohol addicts outside of the state will continue on a limited scale but will be charged for in accordance with the patient's economic status. Its community facility functions have been

taken over by the state operated clinic but it will continue to provide consultant services to industry and to community agencies and will correlate its research with the Laboratory of Applied Physiology.

BCG VACCINATION LAW IN FRANCE

A new law in France will result in the vaccination against tuberculosis of an estimated 10,000,000 Frenchmen. Tuberculin tests and BCG immunization, under the law, are made compulsory for children in maternal homes and orphanages, elementary school children, babies in a family of one or more tuberculous persons, medical and dental students, apprentices in laboratory research and nursing, hospital personnel, government employees, members of the armed forces, and food handlers in public places. The only exemptions in these categories are persons over 30 who may, nevertheless, obtain free inoculations at any of the hundreds of anti-tuberculosis centers that are to be set up as a part of the plan.

10 YEARS OF GRANTS-IN-AID

The Public Health Service has just issued its Bulletin No. 300 entitled *Ten Years of Federal Grants-in-Aid for Public Health, 1936–1946,* prepared by Joseph W. Mountin, Assistant Surgeon General, Emily K. Hankla, and Georgie B. Druzina, Statisticians. This details the background and history of the grants-in-aid program, the development of state and local health activities, and gives expenditure figures. It also has an extensive bibliography. Superintendent of Documents, Washington, D.C., 25 cents.

REGIONAL MEETING, INTERNATIONAL UNION AGAINST THE VENEREAL DISEASES

The International Union Against The Venereal Diseases is holding its General Assembly in Rome, September 12–16. The Union has been given the status of "official relationship" to WHO in accordance with the latter agency's plan of relationship to international voluntary health agencies.

The International Union's Regional Office for the Americas, whose director is Jean B. Pinney, in the belief that "we in the Americas should be mutually informed and . . . make use of every opportunity offered for us to come together for better acquaintance and coöperation," has suggested that members of the Union attending the A.P.H.A. meeting in New York join in a regional conference on Sunday, October 23, to hear reports from Union delegates attending the Rome meetings of the World Health Organization and of the International Union, and to make plans for future coöperation in carrying out the actions agreed upon at these assemblies.

For further information concerning the regional conference, address Jean B. Pinney, Director of the Regional Office for the Americas, International Union Against The Venereal Diseases, 1790 Broadway, New York 19.

TENNESSEE PUBLIC HEALTH ASSOCIATION

The Tennessee Public Health Association held an annual meeting in Nashville, May 2–4. New officers were elected as follows:

President: Frank A. Moore, M.D., Jackson
Vice-President: Helen Jean, R.N., Johnson City
President-Elect: Harcourt A. Morgan, Jr., M.D., Lewisburg
Secretary-Treasurer: Monroe F. Brown, M.D., Nashville

SECOND WORLD HEALTH ASSEMBLY IN ROME

The second World Health Assembly of the World Health Organization was held in Rome, June 13–July 2, 1949. Karl Evang, M.D., Surgeon General, Health Services of Norway, was elected president to succeed Andrija Stampar, M.D., Professor of Hygiene, University

of Zagreb, Yugoslavia, who was president of the First Assembly held in Geneva in 1948, and chairman of the Interim Commission during its existence. Dr. A. Mudaliar of Madras was elected chairman of the Executive Board of WHO. H. Van Zile Hyde, M.D., Public Health Service, was reëlected to a three year term as United States representative on the Executive Board.

In his opening address Dr. Evang suggested that this was not yet the "century of the common man," but rather of the economist, and proposed that the motto of this second World Health Assembly might well be, "Let not the economist make us forget the human being." He further emphasized that WHO is not a political body but one in which "we must all think and feel one for all and all for one . . . It is my hope that we shape the important work of the second Assembly in the spirit of John Donne who said, 'No man is an Iland, intire of it selfe; every man is a peece of the Continent, a part of the maine; if a Clod bee washed away by the Sea, Europe is the lesse, as well as if a Promontorie were, as well as if a Mannor of thy friends or of thine owne were; any mans death diminishes me, because I am involved in Mankinde; and therefore never send to know for whome the bell tolls: It tolls for thee.'"

The second World Health Assembly accepted the idea in international health work of demonstration areas in which all problems pertinent to that area will be tackled with modern methods adapted to the area. In his closing address, President Evang spoke of the new horizons in health opened up by the economic development through technical assistance of under-developed areas, as proposed by President Truman. He praised the recognition by statesmen and economists of the close relation between health and economy. He warned further that justified pride in national health achievements should not obscure the fact that no country has completely solved its health problems, as witness poor farmers and fishermen the world over, the slums of industrial cities, and the millions of lives annually lost through malaria, tuberculosis, cholera, etc.

CONFERENCE ON ANTISEPTICS

The Biology Section of the New York Academy of Sciences announces a conference on "Mechanisms and Evaluation of Antiseptic Activity," to be held in New York City on October 28–29, 1949.

The first session on Friday afternoon will deal with the chemicals from living organisms—the antibiotics. Subjects covered will include their colloidal nature, adsorption on proteins, effect on bacterial metabolism, conditions for optimum effect, and the correlation of improved *in vitro* tests with clinical uses.

Chemicals characterized by high surface-activity, and especially the quaternary ammonium compounds, will be discussed Friday evening. The necessity and procedure for neutralizing any such chemical to permit accurate distinction between bacteriostatic and bactericidal effects, the mechanisms by which surface-active agents are effective and are neutralized, and the evaluation of some compounds will be the themes.

On Saturday morning similar discussions will be concerned with the halogens, mercurials, alcohols and other agents, as well as high temperature, with respect to mechanisms, resistant organisms, toxic effects on tissues and procedures for evaluation. It is proposed that on Saturday afternoon unscheduled discussions, reports, and suggestions may be presented from the audience.

Attendance at the conference is limited to members of the Academy and invited guests. Scientists interested are requested to write to Mrs. Eunice

Thomas Miner, Executive Director, New York Academy of Sciences, Central Park West at 79th Street, New York 24, N. Y. Copies of the printed program, which will serve as invitations and tickets of admission, will be sent out early in October.

PERSONALS

HAZEL E. ALTMANN, R.N.,* succeeded RUTH R. HALL, R.N.,† as Tuberculosis Nursing Consultant of the Indiana State Board of Health in May, 1949.

ARTHUR J. ALTMEYER, U. S. Commissioner for Social Security, received the 1949 Survey award "for imaginative and constructive contribution to social work," presented at the June meeting in Cleveland of the National Conference of Social Work.

CALVIN C. APPLEWHITE, M.D.,† who has retired after 34 years of active duty with the U. S. Public Health Service, has been appointed Director of Local Health Administration in the North Carolina State Board of Health, Raleigh.

ROBERT N. BARR, M.D., M.P.H.,† has been appointed Deputy Executive Officer, Minnesota Department of Health, while continuing to serve as chief of the section on special services.

C. F. BLANKENSHIP, M.D.,* who for the past several months has been assigned to Nevada by the Public Health Service as Acting State Health Officer, on July 15 became Regional Medical Director of F.S.A. region 7 with headquarters in Kansas City. He succeeds JOSEPH DEAN, M.D.,† now assigned to the Washington office of the Service.

ROBERT M. BROWN,† former Chief, Industrial Hygiene Section of the St. Louis (Mo.) Health Department is now Instructor in Public Health, Institute of Occupational Medicine and Hygiene of the Department of Public Health, Yale University Medical School, New Haven, Conn.

JAMES A. CRABTREE, M.D., Dr.P.H.,* formerly Deputy Surgeon General in the U. S. Public Health Service in Washington, D. C., has been appointed as Professor of Public Health Practice at Graduate School of Public Health, University of Pittsburgh.

ROGER J. O. CUMMING, chief of the social service section of the former V-A branch office in Fort Snelling, Minnesota, has been appointed chief of the Veterans Administration social service division.

FLOYD H. DECAMP, D.D.S., formerly with the dental division of the Veterans Administration in Miami, has been appointed Dental Director, Florida State Board of Health.

ROBERT DYSINGER, M.D., is now Mental Health Consultant for Public Health Service, Region 2, with headquarters in New York City.

MARTHA M. ELIOT, M.D.,* was elected President of the National Conference of Social Work at its annual meeting in Cleveland in June. LESTER B. GRANGER, first vice president, will be acting president during Dr. Eliot's extended absences abroad in her capacity as Associate General Director, WHO.

GEOFFREY W. ESTY, M.D., Pediatrician, Division of Maternal and Child Health, has been appointed Director of the Bureau of Constructive Health, New Jersey Department of Health.

J. FRANK FIELD † has become Assistant Director, Division of Sanitation and Engineering, Alaska Territorial Health Department.

AUTINO FIORE, M.D., recently epidemiologist in the division of local health administration, Massachusetts Department of Public Health, has been appointed State District Health Officer in the Quincy district replacing BROOKS RYDER, M.D.,† resigned.

DEAN FISHER, M.D., Director of the

Bureau of Health of the Maine Department of Health and Welfare since 1947, resigned on August 1, to become Director of the Central Maine General Hospital, Lewiston, Me.

ALFRED H. FLETCHER, M.S.,* Senior Sanitary Engineer and Director of the Bureau of Sanitary Engineering, New York City Health Department since 1945, recently became Director of the Bureau of Environmental Sanitation, New Jersey Department of Health.

CHARLES R. FREEBLE, M.D., resumed his duties as Chief of the Venereal Disease Division, Ohio State Health Department after receiving his master's degree at the Johns Hopkins School of Public Health.

I. H. GOLDBERGER, M.D.,* formerly assistant Professor of Pediatrics, New York University Medical School, has been appointed Director of Health Education, Board of Education, New York City.

GILBERT GROFF, Senior Sanitary Engineer of the North Dakota State Health Department, has resigned to join Warren Clark as a consultant engineer in Salem, Ore.

WILLIAM A. HINTON, M.D., known for the Hinton Test and the Davies-Hinton test for syphilis, has been appointed Clinical Professor of Bacteriology and Immunology in the Harvard Medical School, the first Negro to hold a professorship in Harvard University.

WILLIAM HOLLISTER, M.D.,† is Mental Health Consultant, Atlanta, Ga., Regional Office 6 of the Public Health Service, succeeding MICHAEL PESCOR, M.D., who has joined the staff of the Lexington, Ky., Public Health Service Hospital.

PAUL W. KABLER, M.D., PhD., M.P.H., has resigned as chief, section of medical laboratories, Minnesota Department of Health, to become head, bacteriology laboratory and development division, Environmental Health Center, Public Health Service, located at Cincinnati, Ohio.

RALPH KUHLI,† lecturer in social hygiene for the Wisconsin State Board of Health since 1938, has been promoted to Director of the Division of Health Education.

ALEX M. LESEM, M.D.,* head of the Department of Public Health, San Diego County, Calif., since 1924 as full-time county health officer, retired on July 29, after 31 years of service.

ERNEST LITTLE, past president of the American Pharmaceutical Association, professor of chemistry and former dean of Rutgers University College of Pharmacy, has been named the 27th Annual Remington Medalist of the New York Branch of the American Pharmaceutical Association.

HAROLD E. MAYO, has joined the staff of the Alaska Territorial Health Department as Sanitarian, to work on insect control with the U. S. Public Health Service at Anchorage in determining practical control measures for use in Alaska.

LEONARD W. MAYO, S.Sc.D., Vice-President of Western Reserve University, Cleveland, Ohio, has resigned to become Director of the Association for the Aid of Crippled Children, Inc., New York City.

JAMES A. MCCOMB, D.V.M.,† who has been Assistant Director of the division since 1942, was recently appointed acting director of the Division of Biologic Laboratories, Massachusetts Department of Public Health, succeeding GEOFFREY EDSALL, M.D.,* who has resigned to become professor of bacteriology, Boston University.

G. F. MOENCH, M.D.,* has resigned as Chief of Health and Welfare, Oak Ridge, Tenn., to accept a position as Health Commissioner for the Defiance

* Fellow A.P.H.A.
† Member A.P.H.A.

County (Ohio) General Health District at Defiance, where he succeeds FRANCIS M. LENHART, M.D., who is returning to general practice at Defiance after 2 years as first full-time Commissioner of Health in the County.

KIRK T. MOSLEY, M.D., Dr.P.H.,† formerly Professor of Epidemiology at the Tulane Medical School, New Orleans, has been appointed Professor of Epidemiology at the University of Oklahoma, Norman, effective September 1.

STONEWALL JACKSON PHILLIPS, M.D.,† who has for some time been Assistant State Health Officer of Louisiana and earlier director of local parish health departments, has been named Louisiana State Health Officer. He succeeds W. V. GARNIER, M.D.†

ROBERT OGDEN PURVES, former vice-president and manager, North Atlantic Area of the American Red Cross, became Director of Field Organizations of the American Cancer Society in May, 1949.

MILTON I. ROEMER, M.D., M P.H., Surgeon, Public Health Service, has been appointed Assistant Professor of Public Health, Yale University, Department of Public Health, for teaching and research in Medical Care. He will conduct courses for medical students and for graduate students in public health and participate in community health and hospital studies.

J. H. SCRUGGS, D.V.M.,† has joined the staff of the Indiana State Board of Health as veterinary epidemiologist.

W. K. SHARP, JR., M.D..† has been transferred as medical director, of Public Health Service F.S.A. region 3 to district 6 with headquarters in Atlanta, Ga. MARK V. ZIEGLER, M.D.,† succeeds Dr. Sharp in region 3 with headquarters in Washington, D. C. Dr. Ziegler has most recently been assigned to the Bureau of Medical Services of the Public Health Service.

PROFESSOR RICHARD H. SHRYOCK of the Department of History, University of Pennsylvania, Philadelphia, Pa., has been appointed Director of the Institute of the History of Medicine and William H. Welch Professor of the History of Medicine at Johns Hopkins University, Baltimore, effective in September.

BRIGADIER GENERAL JAMES STEVENS SIMMONS, M.D., Dr.P.H., USA Ret'd.,* Dean of the Harvard School of Public Health, has been awarded the Legion of Honor by the French Government in recognition of his contribution to France as the wartime Chief of the Preventive Medicine Service for the U. S. Army.

JULIA DUPUY SMITH, R.N.,* Director of Nurses at the Polio Hospital, Greensboro, N. C., has been appointed a Resident Lecturer in the School of Public Health and in the School of Nursing at the University of Michigan.

JOSEPH A. STATON, Director of Health Education for the North Carolina Tuberculosis Association for the past 2 years, now serves the Denver Tuberculosis Society in the same capacity.

A. BERNARD STEIN,† formerly with the Tuberculosis Institute of Chicago and Cook County, Ill., became Director of Public Information of the Idaho Anti-Tuberculosis Association.

MARGARET M. SULLIVAN, formerly supervisor of the Society for District Nursing, Worcester, is now public health nursing consultant in the Berkshire district office of the Massachusetts State Department of Health Succeeding EDITH M. HERLIHY,† assigned to the Quincy district office.

MILTON V. VELDEE, M.D.,* retired Chief of the Laboratory of Biologics Control, Public Health Service, has become Medical Director and Director

* Fellow A P H A
† Member A P H A

of Research of Hyland Laboratories, Los Angeles. Dr. Veldee is a member of the World Health Organization's Expert Committee on Biological Standardization and a consultant to its Expert Committee on International Quarantine, as well as a member of the Founders Group of the American Board of Preventive Medicine and Public Health. He has been succeeded by his former Assistant Chief, WILLIAM G. WORKMAN, M.D.*

G. HAROLD WARNOCK, M.D.,* formerly epidemiologist in the Nassau County Department of Health, N. Y., has been appointed Deputy Health Officer, Rochester, N. Y.

BERTELL COLLINS WRIGHT, Health Education Director of the Essex County Tuberculosis League and Chairman, Health Committee, National Council of Negro Women, Inc., was the recipient of the 1949 Ernest Doane Easton Award for outstanding service as a tuberculosis association staff worker. The award was sponsored by the New Jersey Conference of Tuberculosis Workers.

THE FOLLOWING APPOINTMENTS HAVE RECENTLY BEEN ANNOUNCED BY THE PUBLIC HEALTH SERVICE:

MARGARET ARNSTEIN, R.N.,* chief Division of Nursing Resources; formerly assistant chief.

JOHN CRONIN, M.D.,† chief, Division of Hospital Facilities; formerly chief of the Federal Health Employee Division.

DANIEL J. DALEY, M.D., chief, Division of Federal Employee Health; formerly chief medical officer, Bureau of Maritime Services, U. S. Maritime Commission.

J. O. DEAN, M.D.,† Associate chief, Bureau of State Services; formerly Medical Director of FSA region 7 in Kansas City.

BRUCE FORSYTH, D.D.S., associate chief, Bureau of Medical Services, chief dental officer of the Service and advisor to the Surgeon General in the field of dentistry.

G. HALSEY HUNT, M.D.,† Chief, Division of Hospitals; formerly assistant chief, Hospital Division.

JOHN W. KNUTSON, D.D.S.,* Chief, Division of Dental Health; a commissioned officer in the service since 1934.

JOHN R. MCGIBONY, M.D.,† Chief, Division of Medical and Hospital Resources; formerly chief of the Division of Hospital Facilities.

YALE UNIVERSITY DEPARTMENT OF PUBLIC HEALTH ANNOUNCES THE FOLLOWING APPOINTMENTS:

HARRY AUERBACH, J. D., M.P.H.,† Instructor in Biostatistics.

ROBERT M. BROWN, M.P.H.,† as instructor in Public Health Section, on Occupational Medicine and Hygiene.

JOSEPH K. HILL, Ph.D., Instructor in Health Education.

ERIC MOOD, M.P.H.,† Lecturer in Sanitation of the Environment.

CHARLES H. OKEY, M.S.,† Instructor in Public Health.

HIRAM SIBLEY, M.S.,† Instructor in Public Health.

EMILY MYRTLE SMITH, M.S.,† Nurse Officer, Public Health Service, to participate in teaching and studies in industrial nursing.

DEATHS

ERNEST BATEMAN BLACK,† senior partner of Black & Veatch, Consulting Engineers, Kansas City, Mo., died July 4 at the age of 67 (Engineering Section).

SUSAN M. COFFIN, M.D.,† who retired 2 years ago from the Division of Maternal and Child Health, Massachusetts State Department of Public Health, died June 1 (Maternal and Child Health Section).

* Fellow A.P.H.A.
† Member A.P.H.A.

GESINA A. F. DEHOLL,† of the Bender Hygienic Laboratory Albany, N. Y. (Laboratory Section).

JOHN M. HAYEK, M.D., M.P.H.,* Director, Division of Maternal and Child Health, Iowa State Department of Health, died May 24 (Maternal and Child Health Section).

EDMOND KLAMKE, M.D., M.P.H.,* Director, Alexandria-Rapides Health Department, Alexandria, La., died October 13, 1948 (Health Officers Section).

M. ALEXANDER NOVEY, M.D.,† died July 16 at the age of 49. He was Director of the Division of Child Health in the Baltimore City Health Department and Assistant Professor of Obstetrics at the University of Maryland Medical School (Maternal and Child Health Section).

SARA B. PLACE. died June 24 after an illness of 6 years. She had been Superintendent of the Infant Welfare Society of Chicago for 33 years prior to her resignation in 1947.

CONFERENCES AND DATES

American Cancer Society. Park Sheraton Hotel, New York, N. Y. October 27–30.

American Congress of Physical Medicine. Netherlands Plaza Hotel, Cincinnati, Ohio. September 6–10.

American Hospital Association. 51st Annual Convention. Hotel Statler, Cleveland, Ohio. September 26–29.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Tropical Medicine, The American Academy of Tropical Medicine, and the National Malaria Society. Memphis, Tenn. November 6–9.

American Water Works Association:

Pennsylvania Section. Penn-Harris Hotel, Harrisburg, Pa. September 14–16.

Rocky Mountain Section. Acacia Hotel, Colorado Springs, Colo. September 22–23.

West Virginia Section. Oglebay Park, Wheeling, W. Va., September 22–23.

Missouri Section. Connor Hotel. Joplin, Mo. September 25–27.

Michigan Section. Park Place Hotel. Traverse City, Mich. September 28–30.

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Wisconsin Section. Hotel Schroeder, Milwaukee, Wis. October 11–13.

Alabama-Mississippi Section, Jackson, Miss. October 19–21.

Virginia Section. Roanoke Hotel, Roanoke, Va. October 24–25.

California Section. Sacramento, Calif. October 26–28.

Conference for Veterinarians. College of Veterinary Medicine, Ohio State University. June 15–17. Columbus, Ohio.

Federation of Sewage Works Associations. 24th Annual Meeting. St. Paul, Minn. October 8–11.

First Inter-American Regional Congress & Second National Congress of Hygiene & Social Medicine. Sponsored by the Government of Argentina and the Pan American Sanitary Bureau. Santa Fe, Argentina. October 21–25.

Florida Public Health Association. George Washington Hotel, West Palm Beach, Fla. October 6–8.

Forty-eighth Annual Conference of the Surgeon General of the Public Health Service and the Chief of the Children's Bureau with the State and Territorial Health Officers, State Mental Health Authorities, and State Hospital Survey and Construction Authorities, Federal Security Building, Washington, D. C. October 19–22.

Illuminating Engineering Society. French Lick, Ind. September 19–23.

International Association of Milk and Food Sanitarians. Weschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.

National Safety Congress and Exposition. (National Safety Council). Morrison Hotel, Chicago, Ill. October 24–28.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y November 7–9.

II Pan American Congress on Pediatrics. Mexico, D. F. November 2–5.

Pennsylvania Association of Clinical Laboratories. Harrisburg, Pa. November 2.

Pennsylvania Public Health Association. Penn Harris Hotel, Harrisburg, Pa. November 2.

Planned Parenthood Federation of America, Inc. Roosevelt Hotel, New York, N. Y. October 25–27.

Puerto Rico Public Health Association. Regional meeting. Arecibo, September 2–3.

Third Inter-American Congress of Radiology, Santiago, Chili. November 11–17.

Washington State Public Health Association. Spokane, Wash. Davenport Hotel. October 10–11.

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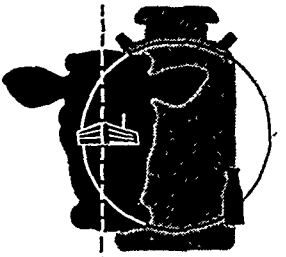
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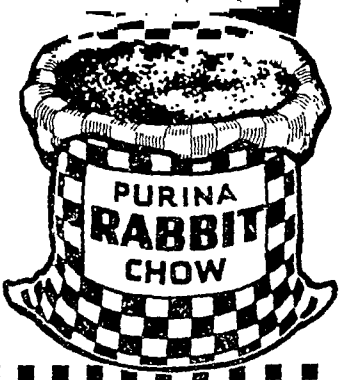
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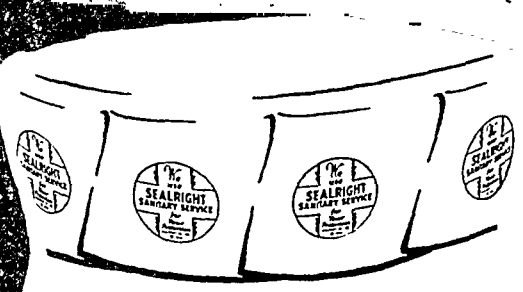
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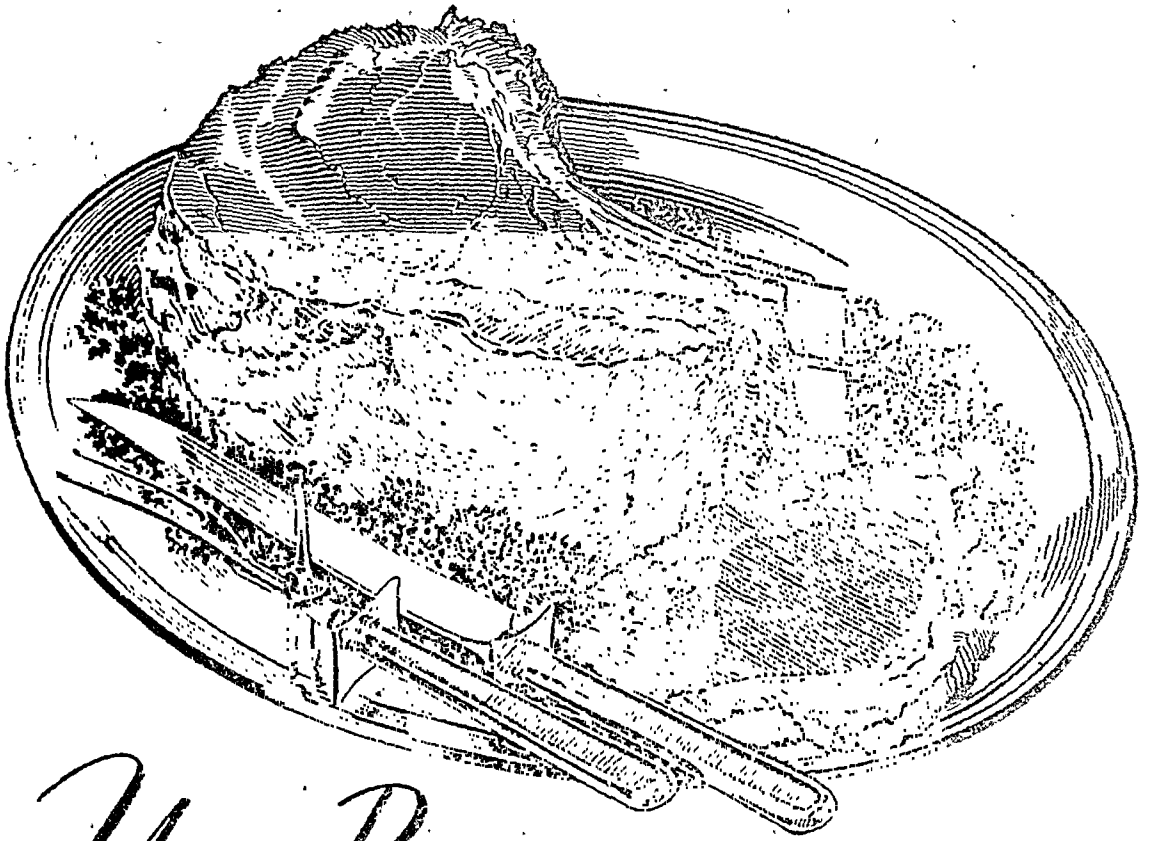
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*McLester, J. S.: Protein Comes Into Its Own, J.A.M.A. 139:897 (April 2) 1949.

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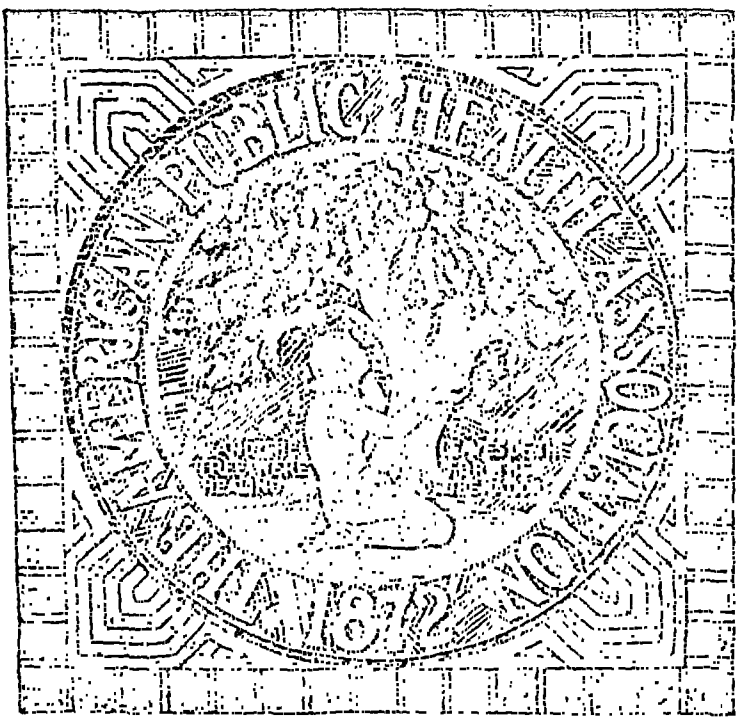
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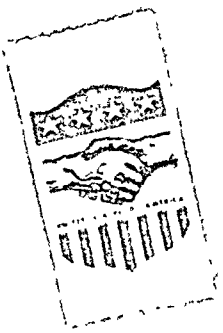
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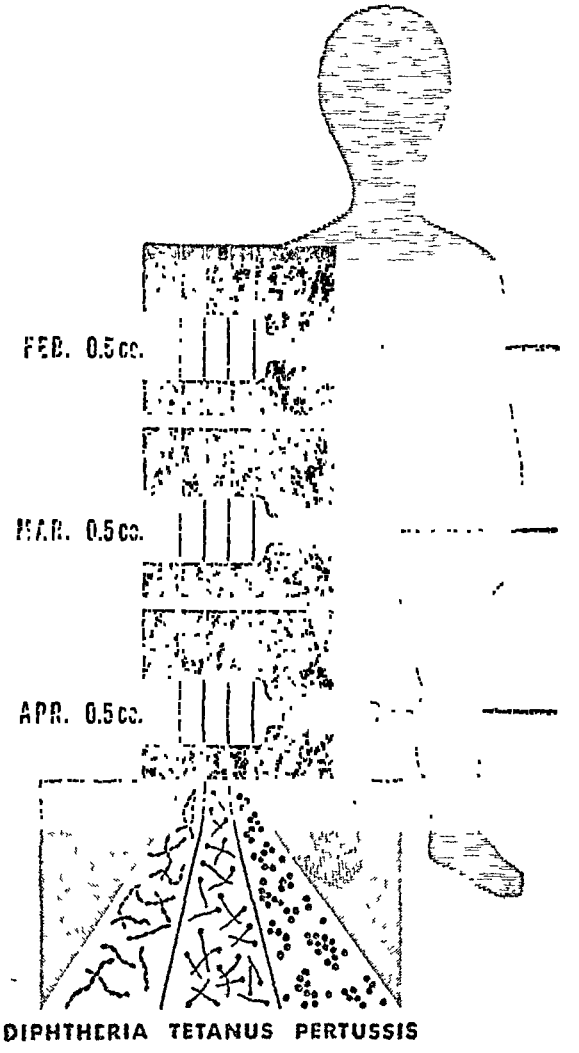
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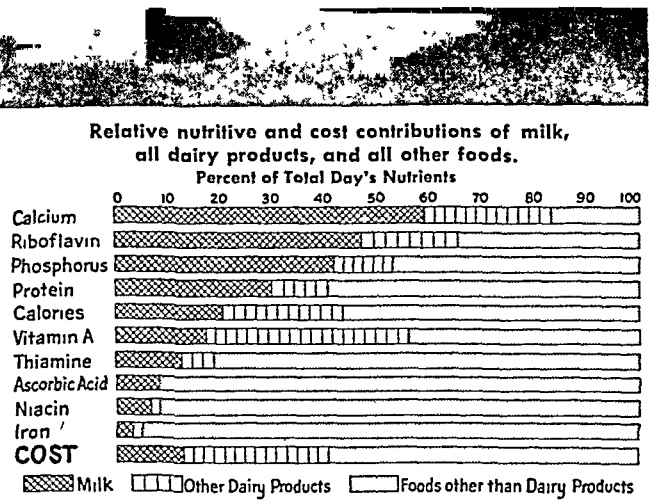
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Milk and its products raise the food value of meals in each of the major aspects of nutrition . . . energy, proteins, minerals and vitamins. The chart above shows that milk and its products—cheese, ice cream and butter—in recommended amounts, can supply well over half of the day's total needs for calcium, phosphorus, riboflavin and vitamin A, and important amounts of other essentials, at considerably less than half of the day's total food cost. The chart demonstrates the fact that milk and its products are an economical basis for nutritious daily meals.

Milk's Food Value is High—Milk is an outstanding example of a food which contributes many times over its original cost in terms of bodily benefits. Without milk it is almost impossible to obtain the recommended daily amounts of calcium from other foods. Needed amounts of riboflavin and protein also are difficult to obtain without milk. In addition to its many *known* benefits, milk also is believed to contain additional nutritional factors whose identity and exact function are not yet fully established. Scientists are constantly carrying on research to bring forth the final significance of milk's nutritional role.

Milk Provides Generously for Its Own "Family"—Milk passes along to its products varying combinations of its nutritive elements. Cheese inherits much of the high quality protein, as well as substantial amounts of calcium and phosphorus. Ice cream, too, retains much of the protein content of milk, and helps increase the calcium and vitamin A intake. Ice cream is also a good source of riboflavin and recently has been shown to contain a highly utilizable form of this vitamin. Butter is a nutritious food in its own right. It is a splendid source of vitamin A and provides needed food energy in a delicious, digestible form.

**Milk is an Economical Food.* Dairy Council Digests. 20:2 (Nov.) 1948.

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American Journal of Public Health
and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

Volume 39 — October, 1949 — Number 10

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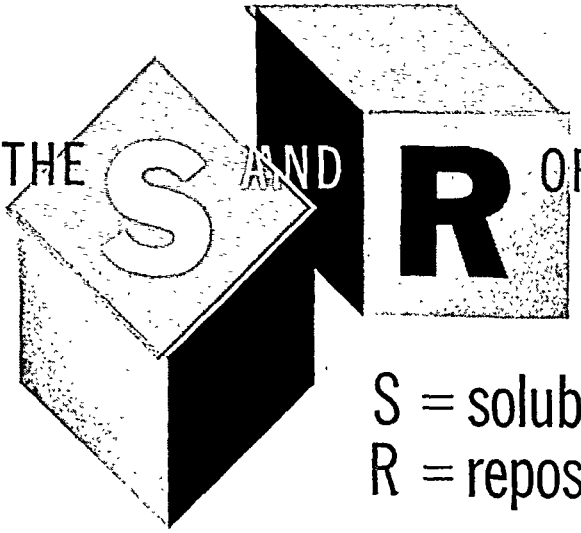
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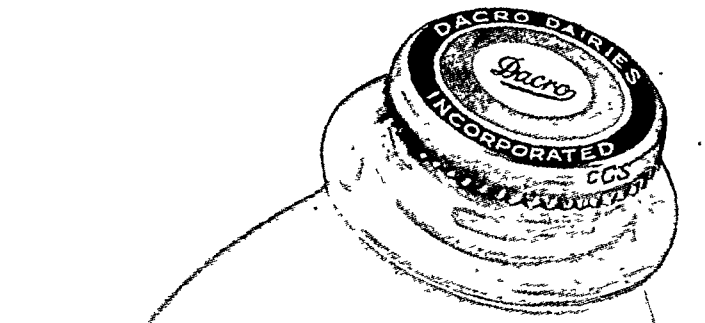
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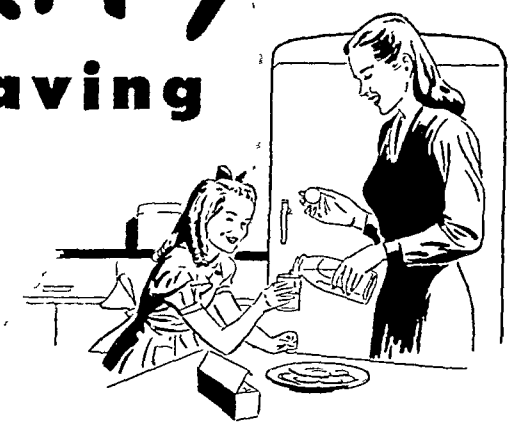
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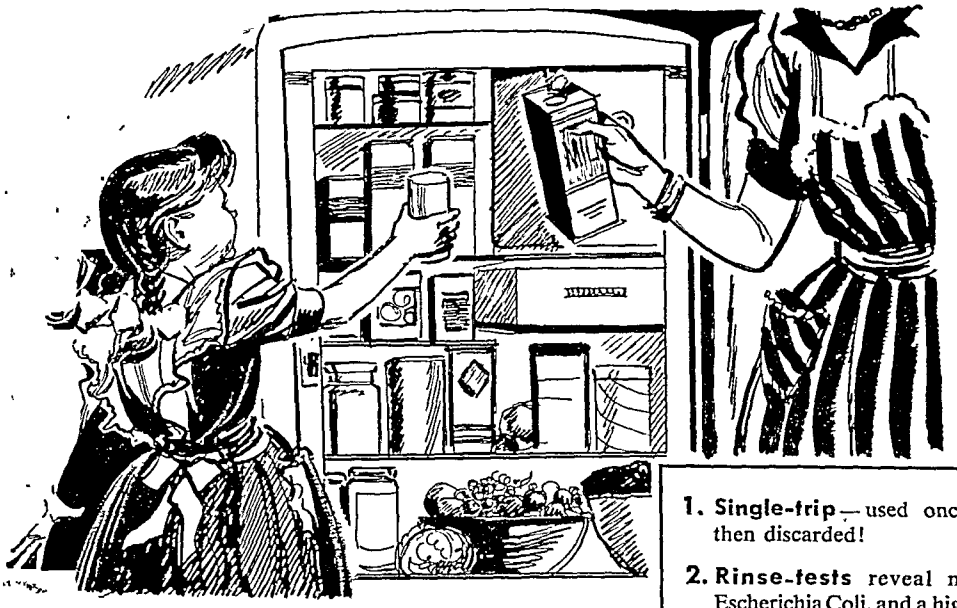
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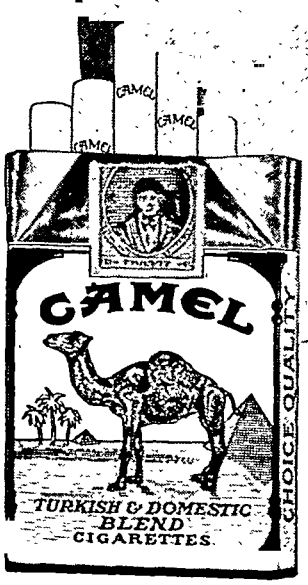
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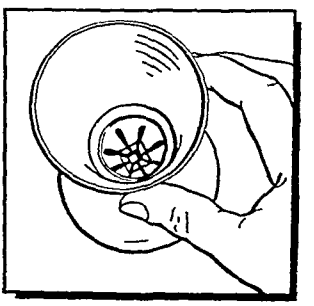
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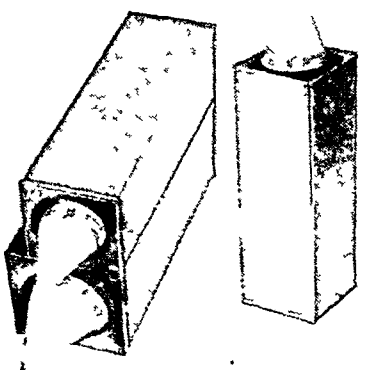
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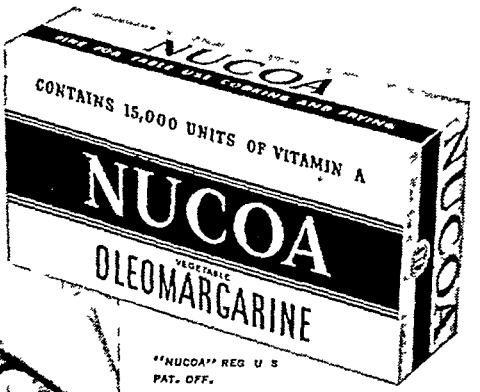
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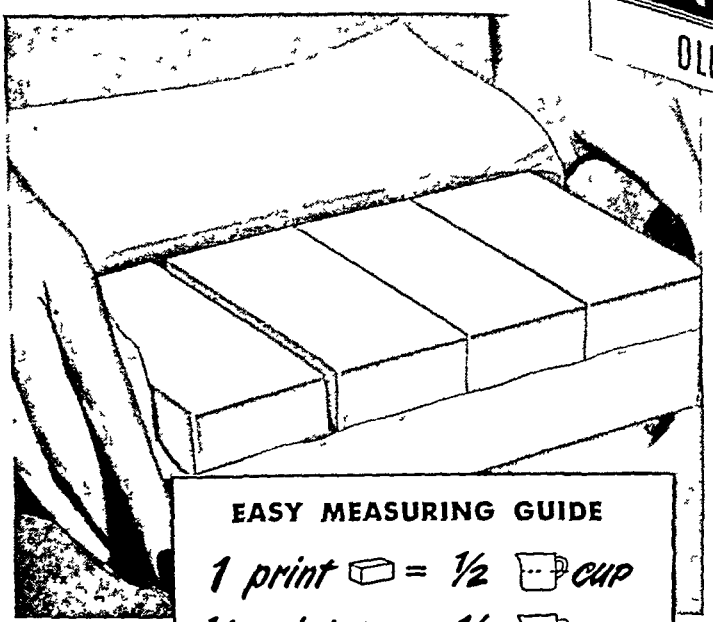


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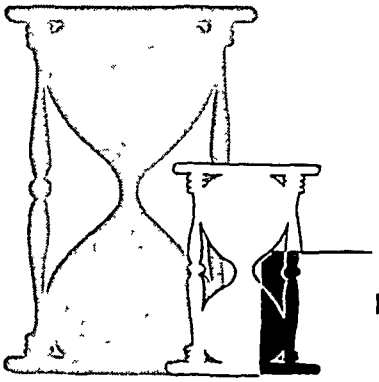
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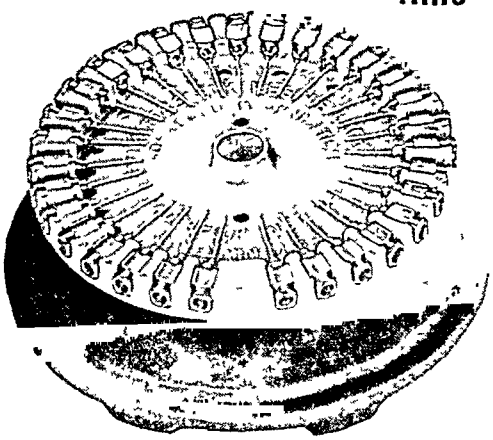
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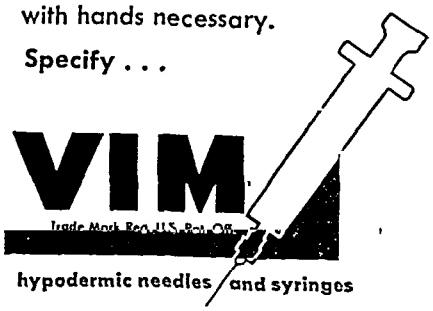


reduce group immunizing time



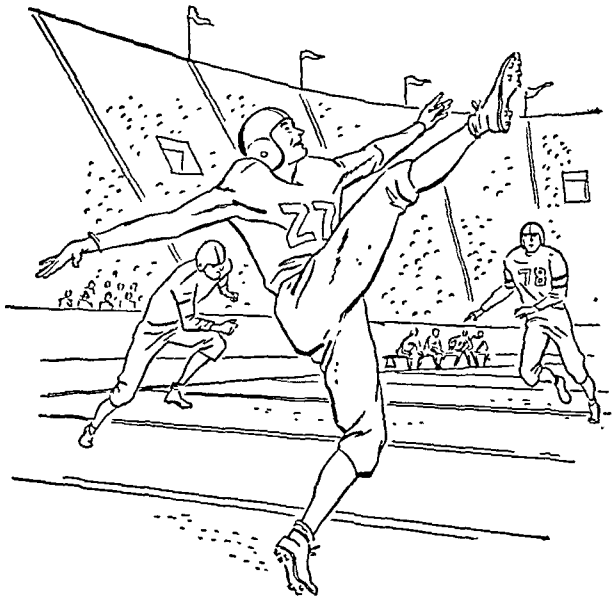
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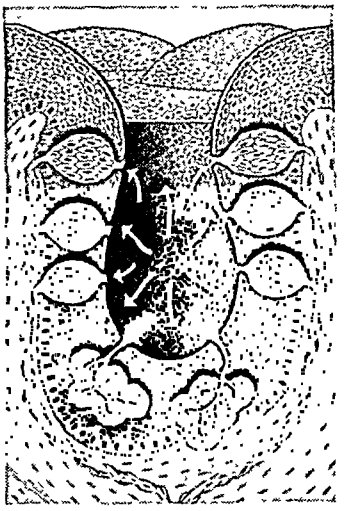
Council on Candy

OF THE

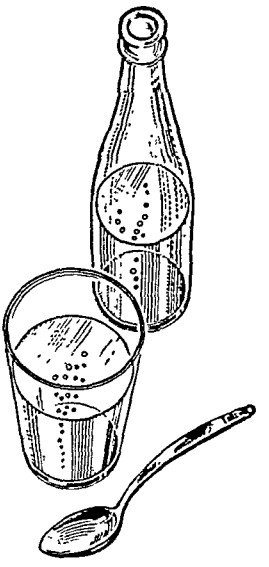
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AN *Antibiotic* PLUS A CARBONATED BEVERAGE



Sketch of a taste pit of the human tongue. The substance being tasted contacts the ciliated sensory buds and a reaction is produced. The two clusters at the base of the pit are mucous glands.



"The patients preferred to take the medicine, when it had to be given in large doses, with a carbonated beverage, because then the medicine did not tend to cause nausea."

In a series of clinical experiments by Ivy and Vaichulas,[1] typhoid carriers were treated with antagonistic bacilli. This preparation, administered orally, created an "antibiotic" in the patients' systems which destroyed the typhoid bacillus.

Administered alone, the preparation caused nausea in most cases, but taken with a carbonated beverage, it was well tolerated.

This is but one of many cases in which bottled carbonated beverages have assisted the physician in overcoming nausea following drug administration. In other cases,[2] they have reduced the time of initial drug action considerably.

In addition to their wholesome refreshment values, bottled carbonated beverages have long been recognized by medical science as valuable in the diets of patients in whom nausea of pregnancy, dehydration and febrile states are factors.

1. Ivy, A. C., personal communication, 1949.

2. Lolli, G. & Smith, R., N.E.J. Med., 235:80-84, July 18, 1946.

AMERICAN BOTTLERS OF CARBONATED BEVERAGES
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The National Association of the Bottled Soft Drink Industry

Adequate Breakfast

AND FATIGUE DURING THE PRE-NOON HOUR

That the daily eating of adequate breakfasts lessens neuromuscular tremor during the pre-noon hour was recently shown in physiologic studies* conducted at the Departments of Physiology and Nutrition of a prominent medical college. As a direct consequence of the better nutritional state induced by improved breakfast habits, involuntary neuromuscular tremor is less during the last morning hour when 800 or 400 calorie breakfasts are the daily routine than when breakfasts are regularly omitted or coffee only constitutes breakfast.

Six young women graduate students were the experimental subjects in this carefully controlled scientific investigation. For permitting adequate physiologic adjustments to the four breakfast practices (800 calories, 400 calories, coffee only, and no breakfast), each practice was followed for a three-week period. The data obtained in the 800 calorie breakfast period were used as the standard base of reference.

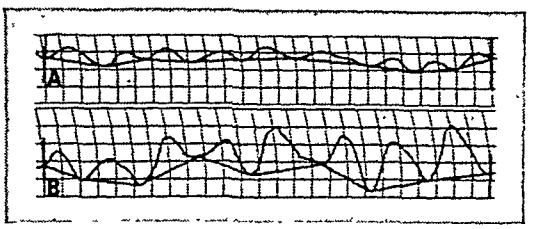
Using specifically designed apparatus, the investigators determined the pattern of amplitude and rate of involuntary muscle tremor of the unsupported outstretched arm both before and after strenuous exercise. Measurements were made during pre-noon hours of the experimental periods.

Conclusions derived from this practically significant study follow:

1. When no breakfast was the morning practice, the magnitude of muscle tremor substantially *increased.*
2. Habituation to coffee only for breakfast induced a similar *increase* in magnitude of muscle tremor.
3. Habituation to the 400 calorie breakfast after the coffee-only period markedly *decreased* the magnitude of muscle tremor; the tremor magnitude status tended to return to the status of the 800 calorie breakfast period.

The conditions of the study did not permit a direct comparison of the effects of the 800 and 400 calorie breakfasts on muscle tremor.

Health and nutrition authorities have long proclaimed the importance of daily adequate breakfasts in the promotion of good nutritional health. The results of this scientific study give direct experimental support to the soundness of such dictum.



Neuromuscular Tremor. Record of a normal tremor (A), and (B) exaggerated tremor. Subjects who are accustomed to eating breakfast have an exaggerated tremor when they suddenly begin to omit breakfast.



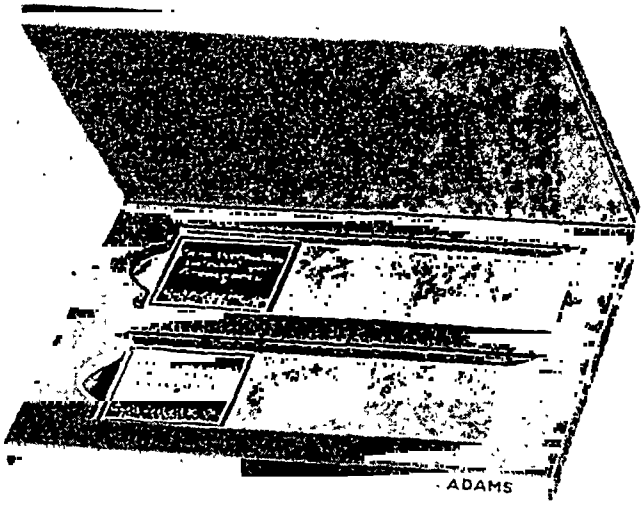
The presence of this seal indicates that all nutritional statements herein have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.



*Reprint of the research study and findings will be sent on request.

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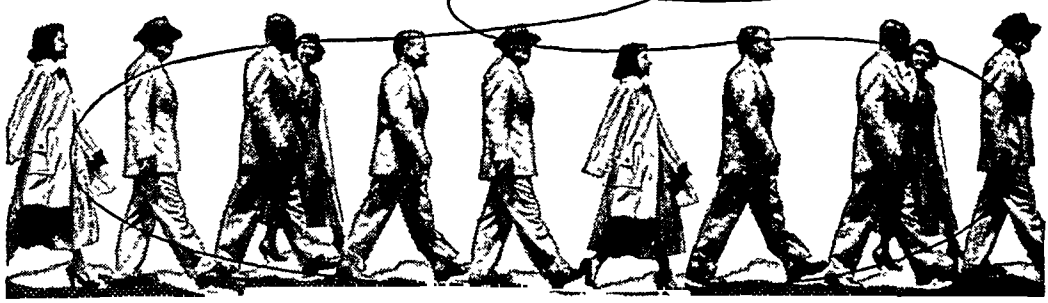
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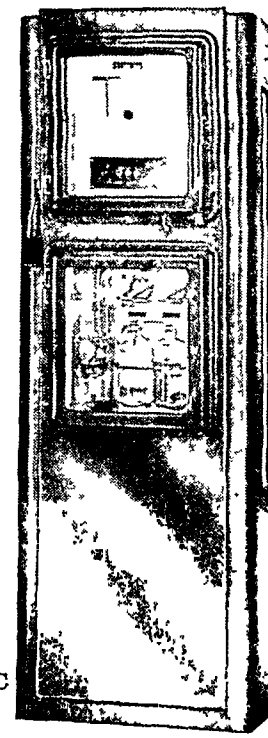
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S 36

American Journal of Public Health
and THE NATION'S HEALTH

Volume 39 October, 1949 Number 10

Health Goals for 1950

IT occurred to the Editor that, in this Mid-Century, it might be of interest to know what the leaders of the public health movement on this continent were *thinking about, dreaming about, desiring* for the promotion of the health of their peoples. Last May, therefore, a letter was sent out to all the state and provincial health officers of the United States and Canada, asking them to indicate the three major improvements they would like to achieve in their areas, listed in order of priority.

We have received returns from all but six state health officers and from three provincial health officers; and the results are tabulated below. We believe they will be of very real interest to our readers.

The numbers in the table indicate first, second, and third choices, respectively. Texas indicated only one goal. Two states listed more than three goals. Massachusetts placed Public Relations fourth, and Wisconsin added Mental Hygiene as a fourth objective and fluorination of water supplies as a fifth. These are not included in the Table.

The objective which stands far out in front is, as one would expect, the development of local health service on the "local unit" plan. Of the 44 states and provinces reporting, 33 mentioned this as one of their three major objectives; and 20 gave it first place.

The actual status of the local unit program varies widely in different states. Wyoming still needs "an enactment of enabling legislation for local public *health departments on a city, county,* and multi-county basis." South Dakota reports only two units in the state. New England states are, of course, very backward in this respect; but Dr. V. A. Getting in Massachusetts hopes for the passage of pending legislation which would make the formation of local health units compulsory at the end of a ten year period of voluntary action stimulated by state and federal subsidies. Indiana reports only seven units, inadequately staffed.

Other states are much farther along the road. Idaho reports nearly half its population covered but hopes to move rapidly under recent legislation. Colorado has about two-thirds of its population under full-time units. Dr. T. F. Sellers reports that "Georgia has 159 counties, less than fifty of which have organized health departments served by medical health officers. The blueprint toward which we have been working calls for fifty-seven health districts of two or more counties each. The critical shortage of medical, nursing, and sanitation personnel and more recently the lack of funds, are greatly handicapping progress toward this objective. The enactment of the Local Units act of

TABLE 1

State or Province	1 Improvement of Local Health Service	2 Recruitment and Training of Personnel	3 Chronic diseases and Geriatrics	4 Mental Hygiene	5 Tuberculosis	6 Reorganization of State Department	7 Maternal and Child Health	8 Public Relations	9 Health Education	10 School Health	11 Hospital and Health Centers	12 Laboratory Service	13 Vital Statistics	14 Stream Pollution	15 Rheumatic Fever	16 Accidents	17 Others	
Alabama	3	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	Alabama
Alberta	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3[c]	Alberta
Arizona	2	..	..	..	3	..	..	1	..	..	..	..	..	..	..	..	..	Arizona
Arkansas	1	..	..	..	..	..	..	2	..	..	..	..	3	..	..	..	..	Arkansas
California	..	..	1	2	..	..	..	..	..	..	..	..	..	..	3	..	..	California
Colorado	1	..	..	..	..	..	..	2	..	3	..	..	..	..	..	..	..	Colorado
Connecticut	1	..	2	..	..	..	..	..	3	..	..	..	..	..	..	..	..	Connecticut
Florida	..	..	2[a]	..	..	..	1	..	..	..	..	..	..	3	..	..	..	Florida
Georgia	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	2[d]	Georgia
Idaho	1	..	..	3	2	..	..	..	..	..	..	..	..	..	..	..	..	Idaho
Illinois	1	3	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	Illinois
Indiana	1	3	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	Indiana
Iowa	1	3	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	Iowa
Kansas	..	3	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	Kansas
Kentucky	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2[e]	Kentucky
Maine	..	2	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	Maine
Maryland	..	..	..	3	1	..	..	..	..	..	..	..	..	..	..	..	2[f]	Maryland
Massachusetts	1	..	2	..	..	..	..	..	..	3	..	..	..	..	..	..	..	Massachusetts
Michigan	1	..	3	..	2	..	..	..	..	..	..	..	..	..	..	..	..	Michigan
Mississippi	..	..	2,3[b]	1	..	..	..	..	..	..	..	..	..	..	..	..	..	Mississippi
Missouri	..	*1*	..	*2*	..	..	..	..	..	..	..	..	..	3	..	..	..	Missouri
Montana	2	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Montana
Newfoundland	3	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	Newfoundland
Nevada	1	..	..	..	2	..	..	..	3	..	..	..	..	..	..	..	..	Nevada
New Hampshire	2	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	New Hampshire
New Jersey	1	..	..	..	..	..	..	..	..	..	..	3	2	..	..	..	..	New Jersey
New York	..	..	.1	..	..	..	2,3	..	..	..	..	..	..	..	..	..	..	New York
North Carolina	1	2	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	North Carolina
North Dakota	2	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	3[g]	North Dakota
Ohio	..	..	..	..	..	2	..	1	..	..	..	..	3	..	..	..	..	Ohio
Oklahoma	1	..	3	..	2	..	.	..	..	..	..	..	..	..	..	..	..	Oklahoma
Ontario	..	*1*	..	3	..	2	..	..	..	..	..	..	..	..	..	..	..	Ontario
Oregon	..	1	..	..	..	..	..	..	..	..	..	..	..	..	2	3	..	Oregon
Pennsylvania	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	1,2[h]	Pennsylvania
South Carolina	*2*	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	South Carolina
South Dakota	2	..	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	South Dakota
Tennessee	3	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	Tennessee
Texas	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Texas
Utah	2	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	Utah
Vermont	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	3[i]	Vermont
Virginia	1	..	..	..	2	..	..	..	..	3	..	..	..	..	..	..	..	Virginia
Washington	1	3	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	Washington
West Virginia	2	..	..	..	..	1	..	..	..	3	..	..	..	..	..	..	..	West Virginia
Wisconsin	1	..	3	..	..	..	..	..	..	..	..	2	..	..	..	..	..	Wisconsin
Wyoming	1	..	..	..	..	..	..	..	3	..	2	..	..	..	..	..	..	Wyoming
Total Choices	33	17	11	8	8	8	6	6	6	6	4	3	3	2	2	2	8	

a. Special diabetes program
b. Separate programs for heart disease and for cancer
c. Dental Hygiene program
d. Program for control of Food Production and Dairy Sanitation
e. "More fair and equitable distribution of State and Federal funds"
f. Venereal Disease
g. Special health program for Indian population
h. First two objectives are "to provide complete medical, surgical, pediatric, dental, speech and psychological service for cleft palate and hare-lip children" and "To establish institutional rehabilitation care of educable cerebral palsy patients"
i. Expansion of public health nursing facilities

1949, or some such equivalent provision, will probably solve the financial handicap but it will still be long before the personnel requirements can be realized."

Still further advanced are such states as Virginia, with 85 per cent of its population covered, and Michigan with 94 per cent. Dr. L. J. Roper of Virginia reports that "at the present time, the major cities and 70 of the 100 counties within the state, are receiving full-time organized health service. Plans have already been completed to establish health services in 8 additional counties effective July 1, 1949. Of the remaining 22 counties, 7 have made the necessary local appropriations for health services which will be established as soon as personnel can be secured."

Such states as Alabama and North Carolina have complete coverage on paper, but list improvement of local service as a major desideratum. Dr. D. G. Gill states that basic health units in Alabama offer "merely a foundation on which adequate personnel, with adequate financing, could build." Dr. J. W. R. Norton in North Carolina states that recruitment of personnel and improvement of quality of service are vital.

A particularly striking contribution to the improvement of local health service comes from Washington. Dr. J. A. Kahl says "First, the activities of the local health departments are being reported to us on mark-sensing cards. In addition, we are breaking down our morbidity and mortality statistics along census tracts as well as our population, and with the use of the mark-sensing cards we will be able to tie activities to census tracts. We are then using field reports made by the various field consultants during the past year, knowledge of all the consultants concerning the particular area and basic economic and social data, as well as business, agriculture and industry in the area. We have now developed a pattern of pulling all of this information together and doing quite a thorough analysis in the State Health Department and completing our analysis with recommendations. The Director of Local Health Services then takes this analysis to the local health department, discusses it with the health officer and staff and requests that they have a planned study of this analysis in staff meetings for a period of four to nine months. At the end of that time, we will have a two or three day seminar in the State Health Department with the total local staff coming to the State Department and all of the consultants possible being in attendance. Here, we will discuss the analysis with the local people and eventually decide upon the type of problems that need attention and developments that need to occur in the area for a three or four year period. Then it will be the responsibility of the Director of Local Health Services to utilize the various consultants in the State Health Department to see that they get this assistance in developing the plan mutually agreed upon."

The second concern of our state health authorities is naturally with the recruitment and training of personnel. Seventeen of them specify this item and 9 of them give it first priority. Dr. J. S. Wheeler of New Hampshire says, "It is practically impossible for the Department of Health to fill staff vacancies, especially those of physicians, dentists, and engineering personnel with competent persons because of the very low salaries to which we are restricted. Because of this situation we have been unable to fill several of our vacancies with competent personnel and are in danger of losing several of our key-personnel. Since no department is better than the personnel which constitutes it, the situation is critical."

The same situation obtains in Canada. Dr. M. R. Bow of Alberta says, "It is becoming increasingly difficult to attract and retain the services of well qualified

medical officers of health, sanitary engineers, public health nurses, laboratory assistants and other technical personnel, on present salary schedules." Dr. J. T. Phair of Ontario says, "we are hampered by one common obstacle, namely the availability of trained staff. For instance, in health education, in the expansion of nutrition work and in a greater development of the mental health service, we find ourselves at a bit of an impasse because of the lack of trained workers."

Not only funds, but also intelligent programs of recruitment and training are essential to meet the need for personnel. Dr. J. W. R. Norton says, "We consider it essential, if we are to have an improved program for local health work, that we recruit to the ranks of public health workers young people with considerable academic training to qualify them to do intelligent and efficient public health work. As a fundamental part of this program we feel that we can exert a wholesome effort in advising local boards of health to pay adequate salaries and to provide a retirement system for each public health worker in North Carolina."

Important developments along this line are reported from Washington. Dr. J. A. Kahl says, "With the assistance of the Kellogg Foundation, we have developed a training program in our local health departments for both students from the University of Washington, including medical and dental undergraduates, as well as public health personnel coming to the state and basic training for people without postgraduate training in public health where it is necessary for us to use them. With the assistance of the Children's Bureau, the State Department and the University of Washington have had in progress the development of a Child Health Center to study growth and development and to teach and offer participation in the various schools at the University. In addition, we hope to transfer our Child Guidance Clinic so that it will be a part of this Center at the University for studying growth and development of the total child. We hope to get health officers and practising physicians as well as nurses and other public health people to attend this Center for intensive instruction.

"The problem of recruiting and retaining, as well as training professional personnel, is a tremendous one at the present time. We are planning to increase our salaries effective July 1 and a copy of our schedule is attached. We hope that with these efforts of training and in-service, intensive courses for our people, as well as more adequate salaries, we may be able to attract many young, ambitious people into the field. Our relationship with the medical school and the fact that physicians, dentists, and nurses are going to get field experience in public health, should be beneficial to the whole program."

Following the two fundamental essentials of local health units and adequate personnel, the table presented reveals a series of goals involving programs for the control of certain specific groups of diseases. The most generally popular of these is the group of programs related to chronic diseases and the disorders associated with an aging population. Eleven health officers mention this type of programs specifically, and California and New York give it top priority. Sometimes chronic diseases are particularly stressed as in California. Dr. W. L. Halverson says, "A major drive is being carried on at the present time to develop a service in relation to diseases of later life. A bill is now pending before the Legislature which would set up a Bureau of Chronic Diseases in the State Department of Public Health and which would place specific responsibilities with this bureau particularly in relation to the development of statistical and preventive serv-

ices. An appropriation of $100,000 is included. It is quite probable that we will have an opportunity of again presenting this to the Legislature because bills for appropriations are not receiving very favorable attention."

In other states, cancer and heart disease are emphasized (with specific programs for heart disease and cancer in Mississippi). Dr. H. E. Hilleboe of New York outlines a three-point program, as follows:

a. Widespread early case finding services, especially examinations for early and precancerous lesions, diabetes, cardiovascular-renal disease, and other chronic diseases of adult life
b. Facilities for chronic disease care with major emphasis on home care, hospital care, and intermediate institutional care for the chronically ill, associated with medical centers and medical schools
c. Provision for the rehabilitation of the chronically ill to include organization of facilities through rehabilitation centers in hospitals throughout the state

In Florida, Dr. W. T. Sowder has plans for a state-wide diabetes program to include, in addition to free distribution of insulin for indigents (already in effect) case finding, case holding, and education of diabetics.

In fourth place comes the development of a more complete mental hygiene program, called for in 8 states, with first priority in Mississippi. In Utah, Dr. W. W. Bigelow reports that the State Welfare Department has been the mental hygiene authority of the state in the past but that this duty has been recently transferred to the State Department of Health. Dr. R. H. Riley in Maryland notes the urgent need for outpatient service for mental disease and for further research on the problems involved.

Dr. T. F. Sellers of Georgia desires to develop mental hygiene service with special reference

a. to the further establishment of child guidance centers
b. to education in the fundamentals of mental hygiene, particularly through university, nursing, and social service workers
c. to improvement of our obsolete commitment laws for admittance to mental institutions

Dr. F. J. Underwood presents the following reasons for a program of this type:

"a. Specialists in psychiatry, psychology, social work, and public health nursing are badly needed for study and service to serious cases of mental disease.
"b. Time and training are needed for the present staff of physicians, nurses, educators, and so on to care for the mental health needs of our present clinic clients.

"This added skill by our present staff would improve our service in our present antepartum clinics, chest clinics, home visits, sanitary inspection, venereal disease follow-up and every contact that we make with the public."

Dr. W. L. Halverson of California writes, "Our second project is to develop a Preventive Mental Hygiene Service in the State Department of Public Health. It is planned that this service will be so designed that it will help local health officers to orient themselves and their staffs on the newer developments in the field of preventive mental hygiene. A start has been made under a grant from the Commonwealth Fund but the drive this year is to secure approval from the state for assuming the service and secure the necessary funds to carry it out."

Geriatrics and mental hygiene represent the newer vistas of public health; but there is still much progress to be made in some of our older activities. It is of special interest to note that tuberculosis—like mental hygiene—is listed as a major objective for new attainment in 8 states (with top priority in Maryland and Tennessee). Dr. J. P. Ward describes tuberculosis as "still our major problem in Arizona." Dr. C. F. Blankenship in Nevada says, "we have a very poor program and a rather high death rate." Dr. L. J. Roper notes

that his Department in Virginia "has already embarked on an extensive construction program to provide additional sanatorium beds for tuberculosis. This activity is receiving major emphasis by the department at this time and it is hoped that, in addition to our routine work, plans may be completed and funds made available to establish two major facilities which will be limited to the surgical treatment of tuberculosis." Dr. R. H. Riley stresses the need for a greatly intensified tuberculosis program; and says, "This will require a more complete and more efficient case finding service, an increase in the use of chest surgery, and a more effective service of rehabilitation. It is not easy to account for the high prevalence of tuberculosis in Maryland but, whatever the causes of this high prevalence may be, there is obvious need for an improvement in our existing service."

The sixth goal listed in our table involves reorganization of the state health department set-up for greater efficiency. This is listed in 8 areas and is given top priority in Newfoundland, South Dakota and West Virginia. In South Dakota the department will be reorganized under a law coming into effect July 1, 1949; and in West Virginia, the Public Health Council will be replaced by a Board of Health and a separate Medical Licensing Board.

Dr. J. A. Kahl emphasizes a development of more effective joint planning in Washington. He says, "I hope to reactivate the State Health Council and to assist in the employment of a full-time executive secretary. My hope is that the council will study the health problems in the State of Washington and collectively determine how well we are meeting them and the ones that we could meet more successfully than at present. Working together, we then hope to plan a program for submission to the legislature, in order to obtain funds to carry out the programs that we can mutually agree upon." He adds "In addition, the staff and I have under consideration the development of advisory committees and consultants to our various programs where practical. We have been inadequate in this phase in the past. Some programs will have professional advisory committees, others will have mixed advisory committees and some will have consultants, such as the laboratory. It is hoped by getting as many people in the community and the state to participate, both professional and non-professional, in the State Health Department programs, we will not only have a sounder program but will have more state-wide support."

Dr. J. W. R. Norton of North Carolina emphasizes the relation of sound central organization to local health services. He says, "We are committed to the policy of holding to the minimum the number of persons employed directly by the State Board of Health as members of the staff of our central organization and, thereby, sending as large a portion as possible of the funds available to the State Board of Health into the county and district health departments. We realize, of course, that in order to follow this policy and yet be in a position to give competent advice, it is desirable for us to consider the advisability of reorganizing our plan for central administration and reduce the number of divisions and bureaus to a number considerably smaller than we have now."

Dr. J. D. Porterfield stresses a similar point. In Ohio he says "the State Health Department functions principally by way of consultation to local health departments and direct services through or for such local health departments. A major consideration, therefore, is improvement of the caliber of consultation provided by the state to local units and more particularly to improvement of the methods of field activities so that they may be integrated into a local unit's program without disruption."

The seventh item in our table is Maternal and Child Health, cited by six states and given top priority in Florida. The objectives of such a program are well stated by Dr. W. T. Sowder as "our expanded and approved Child Health Program which will include a specific program for medical, nursing, and hospital care of prematures"; and this particular part of the program is mentioned by several other contributors (as in Iowa).

The eighth and ninth columns in our table represent closely allied but, we believe, distinct activities. In column 8, we have placed states in which major emphasis was laid on securing popular support for health programs. Six areas appear in this group, with Arizona, North Dakota, and Ohio giving the problem top priority. Dr. J. P. Ward says that better public relations are "very sadly needed in Arizona." Dr. R. L. Cleere of Colorado urges the development of local health councils to promote

"a. Public understanding and support for established health departments.
b. Extension of full-time local health departments."

Dr. T. T. Ross says that "Plans are being formulated to establish and develop a very strong Arkansas State Health Council which will be made up of representatives from various agencies and organizations throughout the state. This overall State Health Council will then further develop and work with local health councils."

In Indiana, Dr. L. E. Burney states, "Greater effort will be directed toward securing the interest, understanding, and support of the various professional groups concerned, striving to develop within them an awareness of their particular responsibility and contribution to the improvement of public health. The value of this approach has been demonstrated in our hospital inspection and licensing program. The medical profession, nursing groups, hospital boards, and administrators meet jointly to consider hospital problems and programs. At the same time an opportunity is provided for discussing the hospital's role as the health center of the area and the physician's role in preventive medicine. The recognition by groups of their obligations and the importance of working together is particularly significant as more emphasis is placed on the problem of chronic diseases. This implies that health departments will have to give greater attention to more comprehensive programs of education than they have in the past."

Dr. J. D. Porterfield writes, "The primary need for public health in Ohio is intensification of a successful public relations program. This should be considered not in the restricted sense of advertising or campaigning, but from the point of view of making a greater number of the state's citizens aware of the public health services available and potentially available in their state, the content and nature of public health activities, and, only finally, the presence of a State Health Department in their government. While health education stimulates people to action, some more far-reaching process is very necessary to bring them to consider this subject and to make them come to health education meetings and read health education material. Problems of money, personnel, prestige, and activation of program depend for solution on this initial step of public relations."

Our column 9 includes statements which tended to stress the primary functions of health education, as designed to convey information and motivate health habits. This field is included by 6 states, with top priority in Maine.

Column 10 includes goals related directly to the school health program and includes 6 states, with top priority in South Carolina. Some health officers stress the educational problems involved.

Dr. R. L. Cleere of Colorado, for example, urges the need for

"a. Developing health curricula in educational institutions to prepare teachers to do better health instruction.
"b. Promoting complete school health programs of a higher caliber than now exists.
"c. Increasing adult and community health education programs."

Other health officers dwell more strongly on direct health services to school children. Dr. V. A. Getting of Massachusetts outlines a program including "The development of more adequate services for children of school age including programs for rheumatic fever, cerebral palsy, epilepsy, the hard of hearing, poor vision, and other special groups. The improvement of school health programs, particularly the spaced examination of school children with parents present, the child stripped and 12–15 minutes devoted to each child. Proper follow-up for the correction of such defects as may be corrected and the provision of special facilities for children needing special attention in schools. The increase in facilities for the care of orthopedically crippled children and the immunization of the school child against infectious diseases. Finally the development of a proper curriculum of health education throughout parochial, private, and public schools."

Development of hospital and health center facilities (column 11) is mentioned by 4 states (Alabama, Illinois, New Hampshire, and Wyoming).

Improvement of laboratory service is stressed in Maine, New Jersey, and Wisconsin. Dr. D. Bergsma in New Jersey mentions as special needs, "Rh, and development of bacterial standards and controls to permit better quality control of milk, cream, ice cream, and shellfish supplies." Dr. E. H. Jorris in Wisconsin cites as needs, "broader public health services and research for the diagnosis and control of disease, including virus diseases and the cytological diagnosis of cancer."

Improvement in vital statistics procedures is mentioned by Arkansas, New Jersey, and Ohio. Dr. T. T. Ross in Arkansas stresses the improvement of registration procedures, more thorough analysis of health statistics and service to other divisions of the department. Dr. J. D. Porterfield says: "A neglected basic field in Ohio is that of local records. Practically nothing has been done to provide a standard recommended record system in local units, and its need is obvious not only to improve the efficiency of local units and save the time of local personnel, but to facilitate the provision of reports to the state which are sufficiently extensive to serve as a basis for program analysis and planning."

Special stream pollution control programs are contemplated in Florida and Missouri; special rheumatic fever programs in California and Oregon; special accident control programs in Kansas and Oregon. Dr. W. L. Halverson outlines the proposed California program as follows: "Our third field of endeavor is to develop a service for the diagnosis and treatment of rheumatic fever and rheumatic heart disease. Surveys in our state indicate that this problem is great even though we are supposed to be in a more favorable climatic zone. The Legislature in 1947 requested that a study of the incidence of the rheumatic fever be carried out and that the department should make recommendations to this session of the Legislature. The recommendations are in and we are requesting an appropriation of $900,000 in order to give proper diagnostic and therapeutic services to children falling in this particular disease category."

Dr. F. C. Beelman gives top priority to the problem of accidents, on which he comments as follows: "Although Kansas has done a good job in collecting, studying, and interpreting statistical information on accidents, as yet, we have not aggressively tackled the prob-

lem. It is planned to secure full-time personnel (trained in the field of accident prevention, if possible) to carry out a state-wide program in accident prevention. A part of the program will be to encourage local health departments to develop home safety programs. Accidents—fast pushing their way to the front as one of the leading causes of death—are a community problem in which the local health department should play a major role."

The footnotes to the table indicate eight activities mentioned only once by health officers. They include dental hygiene (Alberta); improvements in control of food production and dairy sanitation (Georgia); "more fair and equitable distribution of state and federal funds" (Kentucky); improved venereal disease control (Maryland); a special health program for the Indian population (North Dakota); two highly specialized types of medical care for specific diseases (Pennsylvania); and expansion of public health nursing facilities (Vermont).

Workers in the old and established field of public health should not be aggrieved because our tabulation contains only one reference to nursing, one to venereal diseases, only three to sanitation, laboratory service, or statistics. The health officers were asked to indicate the *new* things they wanted to do, the expansions specially indicated for 1950. They have given us a highly stimulating picture of the fields opening ahead. The *Journal* and its readers owe a very real debt to the state and provincial leaders who have participated in this symposium.

The Spoils System in Action

"Many of us are often impatient with what is called 'the civil service system' and point to a few jurisdictions where a strong administrator, under an enlightened legislative body and a sympathetic chief executive, is doing an outstanding job of personnel administration without the aid of a civil service law. We are inclined to forget that such an ideal situation is not typical; that in general in this country the patronage system is the alternative to 'civil service.'

"We are also sometimes inclined to forget that a civil service law is not self-executing and that it is never altogether accepted in certain quarters. Selfishly interested individuals and groups are always looking for a way around or through it and are always seizing upon opportunities to discredit it. It is the rare politician who is far-sighted enough to act on James A. Farley's advice that 'When political organizations begin thinking about jobs and nothing else . . . they have commenced their own death chant without realizing it.' That is why over half of our 48 states are still without civil service laws, why excellent laws are in frequent danger of repeal or weakening amendment . . . and why eternal vigilance is necessary to see that in those jurisdictions where good civil service laws are on the statute books they are enforced and well administered.

"What can—and usually does—happen when adequate enforcement and administration are lacking, and when the political chiseling to which civil service laws are peculiarly subject is successful, is shown by the study which the American Public Health Association has made of the Pennsylvania Health Department.

"For those who want facts on the practical workings of a disguised spoils system, we offer extracts from this study, 'Keystones of Public Health for Pennsylvania.'"

[Here follows a digest on the Recruitment of Workers, the History of the Merit System, Permanence of Employment, Political Activity, the Merit System Agency and Conclusions relating to public support and public interest in personnel administration from the A.P.H.A.'s Report on Pennsylvania.]

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Motivation in Health Education*

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THE subject of my presentation is motivation in health education. I want at the very outset to underscore the fact that I am to deal with two distinctive factors — motivation and health education.

Motivation is a psychological concept, health education on the other hand is a definite discipline and practice. Motivation, defined at its simplest, involves inducing individuals to behave in desired and predetermined patterns. The linking of motivation to health education is rational and obvious. It implies the affecting of behavior of the individual in the directions implied by the contents and objectives of the education in health.

All that I have just said could be summed up in the vernacular of the street, as follows: "*Motivation in health education means how to get people to do the things you want them to do for the sake of their health.*" This vulgar definition, however, does not quite suit our purpose, for we need to establish the fact that motivation and health education, though seemingly a nondisentangleable twain, are really derived from three separate disciplines: motivation from psychology, and health education from the biological sciences, and from pedagogy.

Into the practice of health education there enter, (1) the facts derived from science; (2) the techniques utilized in the presentation of the facts derived from pedagogy; and (3) motivation, derived from psychology. Motivation charges the "lesson" with affect or, to use a not strictly equivalent but more widely understood term—with emotions.

Reviewing the history of health education, one sees that health educators at first were primarily and almost exclusively preoccupied with the presentation of *facts*. Recall, if you can, the days of the early anti-tuberculosis campaigns, when health education was carried on by means of "pickled" tuberculous lungs, exhibited in formalin-containing jars, of electric light bulbs that rhythmically flashed on and off, every flash marking the demise of some poor soul, a victim of tuberculosis; of spotted maps showing the density of tuberculosis deaths; of dismal photographs showing unsanitary tenements, filthy and depressing backyards, and so on. The "health education" of the tuberculosis movement in the first and second decades of the 20th century depended upon the crude, bare, and startling facts, presented without reference to pedagogy, and certainly without thought or knowledge of motivation. The prevailing belief was that facts *starkly* presented, must prove to be the most compelling of arguments.

This belief in the persuasiveness of the bare facts has not been discarded, but is, on the contrary, still widely held. The techniques of presenting the facts are more refined these days, but the greatest bulk of our so-called health education which, be it affirmed, is not *health* education but *disease* education, still reflects the conviction that, if you

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but present the facts clearly and correctly, the public *must* become interested, impressed, and persuaded.

This is so pathetic a delusion and so great a folly that we need spend no time in exposing it. The problem here is rather of another order, namely, why do people who are themselves not motivated by facts, believe that others can be, and are, so motivated? I suspect that the answer is to be found in that facts are tangible, but emotions are not, and that we as health educators generally feel safer when dealing with facts than with emotions.

Without intending to single it out as a particularly bad example, but only because it so effectively illustrates my thesis, let us consider the so-called health education in social hygiene. For many decades now the public has been taught that gonorrhea and syphilis are communicable diseases, that they are transmitted from the infected to the non-infected, and that sexual promiscuity is the principal cause of the spread of venereal infection. But I dare say, and recent evidences support what I say, that all the decades of the dissemination of the facts relative to the venereal diseases, have had no appreciable effect on so-called sexual promiscuity, and very little, if any, *direct* effect on the incidence of the venereal infections.

I launched forth on something of a historical recitation on health education, by beginning with the "horror exhibits" of the early anti-tuberculosis movement. To carry this historical sketch further, we need recall that some among the health educators soon became convinced that to educate the public effectively it was not enough to present the facts correctly and clearly; for facts in and by themselves were but little if at all charged with motivation. Then we witnessed a change. The facts were no longer presented stark naked, but were dressed up in emotions. Having myself contributed to that change I can look back upon it with amusement, seeing how utterly naive our efforts were. I can recall employing humorous cartoons —wandering gypsies and other entertainers who, among other tricks, crooned health songs and jingles. We made animated cartoons, played with puppets, and utilized a variety of other popular and appealing "vehicles" to convey our health education to the public.

This second phase in the development of health education was an improvement upon the stark naked fact era. Now facts were sugar-coated with sweet emotions. One might not like to be lectured about green vegetables, or on the need to brush one's teeth, but it is surely more pleasant to listen to the injunctions when crooned in doggerel verse to the tune of a banjo. The lessons on sleep, on rest, on exercise, on the washing of one's hands, and on refraining from spitting, the stock-in-trade of the health educator of that period, were less boring and annoying when presented in a Punch and Judy show than they had been when lecturers, posters, and leaflets literally shook their *injunctious* fingers at one's nose.

All of this is motivation of a kind. It is, what I must call, *Pavlovian motivation*. It is motivation by conditioning. It brings together affects and experiences that are not necessarily, and indeed seldom are, related in normal experiences. It is akin to the original Pavlov experiment in which the conditioned dog salivates at the sound of a bell, a pattern of behavior which, I am sure you will agree, is quite futile and irrational.

Pavlovian motivation is the motivation of the huckster. It is "the trick in trade" of the advertising promoter. It provides the rationale for the pretty face on the magazine cover, for the association of the pretty and pleasant with those things which the huckster wants to sell.

To call this procedure "Pavlovian motivation" is to identify and to de-

scribe its mechanism. But having described it as "Pavlovian motivation" I must rename it to suit our ends better. The application of unrelated or but tenuously related emotions to certain facts is to be termed *exogenous motivation,* that is, motivation stemming from the outside. By the token of this name I am sure you must anticipate its logical opposite—*endogenous motivation.* Such an assumption is quite correct.

The thesis I want to develop is that *effective health education can only be achieved by linking what is to be taught to the endogenous motivation of the person addressed.*

First, however, I should like to spend a little more time on the subject of exogenous motivation.

One of its outstanding characteristics is its tendency to push people around. It tells them with a none-too-successfully disguised imperiousness what they ought, what they should, and what they must, do. It is frequently more authoritarian in tone, than in substance, more righteous than informing. Its effect on a goodly portion of the population is provoking and antagonizing, an effect summed up in the vulgar expression "I say it is spinach and to hell with it."

Analyzing the derivation of this type of health education material, it is seen that the imperious and irritating overtones are practically unavoidable and inescapable. For the origin of the material is almost always of this order. Some undesired and untoward condition is observed, and the health educator sets out to counter-affect it. To achieve this he must try to get people, *nolens volens,* to do certain things. Hence the injunctions "do this! don't do that!" Knowing that people are loath to accept and to respond to such imperious injunctions, health education material is frequently freighted with fear. This quite often results in "horror material." At times the result is painfully apologetic. The health educator, peering out from behind his materials appears to be saying: "I know the facts are unpleasant and I really don't like to force them upon you, but I must, for if *you* don't pay attention to them, and act accordingly, something very dire is likely to happen to *you.*"

Exogenous motivation is motivation by *artifice.* Its operations are seen most clearly in the practices of the huckster. He starts out with a something to sell. He then explores the ways and means by which he can motivate people to part with their money in exchange for what he has to sell. It does not really matter whether the people need what he has to sell, nor whether it is in itself good or bad. His job is to motivate public acceptance of that which he is hired to sell.

The health educator is more idealistic in his intentions and more scrupulous about the overall and ultimate good of what he has "to sell," but his fundamental procedure is about the same as that of the huckster. He, too, starts out with something "to sell." It may be cancer, or the venereal diseases, or oral hygiene, and he too proceeds from there to discover ways by which he may sell his commodity to the public.

If we seek to understand why so much of our health education is exogenously motivated we will find the explanation in the fact that the concepts of dynamic psychology have not yet percolated down to the health educators. Their assumptions as to the psychology of the individual are to be described as static rather than dynamic. They seem to think of their audience as a sleeping beauty, awaiting the animating touch of their educational materials. In reality, however, the normal individual is not passively waiting to be educated, and unless he is in a completely hypnotized state, he is not supinely open to the influences of the health educator.

The normal individual is a motile being, both physically and psychologi-

cally. Any new force that is brought to bear upon him meets with older forces already in operation, and the resultant of the conjunction of the older forces with the new force may be other than anticipated and desired. It is a fact that in planning and in executing our health education services we seldom begin, as we should, by defining the "nature, quality, condition, and direction of motion," of the person whom we propose to educate. We begin rather with the *text*; with the facts to be disseminated, and with the conclusions to be drawn. Such psychology as we do apply in our labors is of the static rather than the dynamic variety. This brings me to the subject of endogenous motivation. This concept is derived from, and is part of, the science of dynamic psychology. Basic to it is the recognition that *the individual is an organism with an innate momentum, whose evolvement and progression follow distinctive and characteristic patterns.* From the time that he is conceived, to the time that he draws his last breath, the individual is impelled by certain characteristic drives. The mosaic pattern of those drives changes from period to period as the individual progresses from intra-uterine to extra-uterine existence, from infancy to childhood, from childhood to adolescence, and so on to the end of his term on earth. In this changing mosaic there are to be witnessed the egressions and regressions of interests, the rise of some, and the decline of other susceptibilities, and a procession of altering wants, needs, ambitions, and curiosities. All these are subject to change in kind, in degree, and in intensity, from period to period, and within any given period from time to time.

In the light of dynamic psychology, the individual is seen to be subject to complex and continuously varying patterns of motivations. Hence to be fully effective, health education must take its cue and draw its guidance from a clear knowledge and appreciation of the inherent, that is endogenous, motivations of the individual, *at the time and in the circumstances in which* the individual is to be addressed.

Let me illustrate the meaning of endogenous motivation by some concrete examples. I will begin with one that dates twenty or more years back. At that time I ruffled the feelings of an earnest health educator who lamented that young women spent more than they could afford on silk stockings (it was silk then and not nylon) and on make-up, and not as much as they should have spent, on milk. Even twenty years ago I was persuaded that milk is a good, a necessary, a valuable food. But I ventured to suggest, and this naturally discomfited the earnest young health educator, that maybe she was wrong, and the young woman was right. For, said I in support of my suggestion, if the primary business of a young woman was to get herself a husband, and if the "cultus" of our age was such that a young woman without a sufficiency of silk stockings, and without adequate make-up, permanents, facials, etc., was handicapped in the matrimonial race, and assuming, of course, that there wasn't enough money available for all these things and milk also, then the young woman was right in sacrificing the milk. Her instincts tell her so, and if she be a normal lass, all your teaching and preaching will avail to naught. The trouble with that health educator was that she thought primarily of milk, and not primarily of the girl. Had she thought of the girl, she would never have permitted herself to be entrapped in so dismal and hopeless an apposition as silk stockings versus milk. She might rather have sought to teach the girl how she might have silk stockings—*and milk also*. Or in true heroic fashion she might even have waited to let true love run its course, and then when it was time to think of "knitting booties," and the

erstwhile young woman had become interested in building a good little body, then perhaps she might have driven her lesson on milk home—*unobstructed,* i.e., by endogenous motivation.

I shall cite some other examples later on. Here I want to introduce another significant consideration which stems from dynamic psychology, and which illuminates the meaning of endogenous motivation.

All health education rests upon the assumption that people prize health and that they are eager to be healthy. Accordingly, our health education is addressed to the individual in such terms as " to be healthy—do so and so "; " if you want to remain healthy—don't do so and so "; " if you want to regain your health—follow such and such instructions." But always—we speak in terms of health, or, to be more precise, sometimes in terms of health and more often in negative health terms, i.e., of disease.

The data of dynamic psychology do not, however, validate the assumption that the individual is eager to be healthy. There is no such instinct, drive, or motivation known to dynamic psychology. The individual wants to eat, to move, to rest, to serve his body's needs. The little boy wants, if he is healthy, to grow big, and strong, to be able to do things, to run, play, to acquire and develop skills. The young man, and the young woman, wants to be attractive, to be liked, to be popular, to have friends, to advance in his or her studies, or works, or ambitions. Grown older, they will want love and sexuality, and marriage, and a home, and children. They will want many things—but they will not want health, i.e., health, pure and simple, unless of course they are hypochondriacs or otherwise mentally and emotionally sick. When sick, they will want to be rid of their illness, but even then not in order to be healthy, but rather to be able to get on with the business of living. There are some—indeed quite a number—who really do not want to get on with the business of living—and so they become and remain sick, while seemingly striving to regain their health. These individuals constitute quite a problem, and they are particularly troublesome to their doctors who strive so hard to help them back to health, and yet succeed so poorly. The fact of course is that unless these individuals can be helped to acquire, or to regain favorable interest in the business of living, they are not likely to become healthy, nor to remain healthy.

It is, of course, true that without health the individual either fails to achieve his " fulfillment "—or does it badly. But there does not appear to be among the basic drives one that can be described as a drive " to be healthy." On the contrary there are some among our basic drives that involve the expenditure of self and the sacrifice of health. Man is not quite like the salmon that swims upstream to spawn and die. But in his make-up there is something remaining of that same primitive overmastering urge to achieve without count of self.

Here then we come upon the crux of endogenous motivation, and perceive its relation to health education. The impulsion to carry on the business of living derives from the basic drives inherent in man. Among these basic drives there is none that can be described as the drive to be healthy. Yet to achieve fulfillment, to be successful in the business of living—the individual needs to be healthy.

Unfortunately, the average individual does not quite appreciate that he needs health for successful living, nor does he know just how health is to be maintained or regained. That is where the health educator's opportunities arise. But, be it noted most clearly, the health educator's opportunities are not there to teach health, but rather to teach the individual

how to attain his immediate goals. Inevitably, since health is one of the prerequisites in the attainment of one's immediate goals—some of the lesson must deal with health.

Bear in mind that according to dynamic psychology the goals of the individual differ and change. The ambitions and drives of the little boy are different from those he will have when a pimply, gawky adolescent, and those of the "lovelorn lass"—from those she will have when safely married and thinking of a family. These differing "goals" constitute the impulsions we have named *endogenous motivations*. They *are* endogenous, for they arise *within* the individual, and they are motivations because they are in fact powerful interests, and powerful driving forces. Health education, endogenously motivated, is founded on the current interests of the person addressed, and is pointed in the direction of his immediate goals. The health data offered are such as will help to advance the individual toward his objectives.

It is proverbial that the lads who will ordinarily brook no restraint on smoking, eating, etc., will, if and when they are "on the team," endure every deprivation. What for? For health? No! For victory! The boy of six cares nothing about calcium and its relation to bone structure. But if you can promise that he will be as big and strong as Popeye the Sailor—if but he eats spinach—spinach he will eat. And again, why? So that he might be healthy? Hardly! But so that he might, like Popeye—be powerful and unconquerable.

Our present health education, however, reveals but little insight into, or interest in, the business of living. It appears to be unaware of the fact that boys and girls, and men and women are troubled and curious about things other than diseases, infections, and their prevention, diagnoses, and treatment.

Once again I select in illustration an example from the social hygiene literature. My example is a booklet addressed to high school students. In it are to be found the "standard facts" about syphilis and gonorrhea—and also the rather distressing statements that syphilis may be transmitted by kissing—and that heavy necking may lead to venereal infection. The text is illustrated with forceful pictures—grim and distressing! It is to my mind a fine example of exogenously motivated health education.

I can visualize the intricate process by which that piece of literature came into being. Someone was earnestly impressed by the need to bring the facts on the venereal diseases to the high school population—and they proceeded to do it. But—I doubt very much that the high school population is really interested in the venereal diseases. I doubt that one could find an endogenous curiosity about syphilis and gonorrhea in the average normal youngster. I doubt that the information conveyed in that type of literature is effective. I am rather inclined to believe that this type of educational effort discredits itself, for either it is disbelieved and rejected (kissing really doesn't spread syphilis; not in the experience of most youngsters, and heavy necking vastly more often leads to marriage than to infection), or it *is* believed and not infrequently produces crippling effects not less serious than the venereal infections, and very much more difficult to cure.

What *does* interest the youngsters in our high schools? Nothing less than this new and beautiful world, its mystery, and its glory.

> O! wonder!
> How many goodly creatures are there here!
> How beauteous mankind is! O brave new world,
> That has such people in't!
> (*The Tempest*—Act V. Sc. I)

Boys interest girls, and girls boys. This new, strange, and rather recalcitrant

thing called love, interests and troubles them. These, and what the coming years have ahead of them, in work and career, are among the inner stirrings, the endogenous motivations of these youngsters. Booth Tarkington, times past, and Archy Andrews, nowadays, well mirror the stirrings of youth, even though reflecting quite correctly more of bathos than of pathos.

An endogenously motivated text on social hygiene, addressed to the high school student, would first and foremost attempt to bring affirmation and assurance. Affirmation that the stirrings of youth, in spite of concomitant embarrassments, confusions, and troubles, are but precursors to the opportunities, achievements, and satisfactions of adult life; and assurance that many of the fears, superstitions, and misconceptions are indeed such. It would name them by name to discredit them. It would offer sound advice on how the youngsters might meet and deal with their common problems, in being and in behavior, and how they might advance and prepare themselves for the great adventures of adulthood. Somewhere in the text there would be mention of the venereal diseases, but only as conditions which impede progression toward youth's goals. Youth is interested in the adventure of living, in love and in achievement. It is not normally interested in the venereal diseases.

I fear that my friends among the social hygiene workers may think me rather carping in my criticism. I will offer them this much of an apology—I chose to illustrate my theme with their texts, not because they were unique in the field of health education—but because they are so strikingly fitting. The faults illustrated are fairly universal. To swing wide for a different example—we might go to *accident prevention,* and there we would witness that most of the "education" centers about the physical and environmental factors which make for accidents. Yet it is a fact, well known in dynamic psychology, *that most accidents are resultants of* the human factor, and that the so-called physical components are but concretizations of the psychological factor. Accidents are seldom due to ignorance. Yet I have seen but little accident prevention material which shows an appreciation of the bearings of inner, that is endogenous, motivations on the occurrence of accidents.

In this instance we come upon the negative phase of endogenous motivation. Up to now I have referred to endogenous motivation as a forward drive, as the impulsion to get on with the business of living. That is correct, but we must recognize the existence also of endogenous motivations which retard, impede, and deflect the individual's progression. We witness this in people's resistance to persuasion and education, in their clinging to superstitions and to old-wives' beliefs and practices, in their susceptibility to quackery, and in their espousal of bizarre movements and causes. Even in normal development there is to be witnessed a great deal of ambivalence. It's true, that the little boy wants to grow big, but witnessing his little sister being cuddled, he will want also to reclaim his place on the reassuring lap of his mother.

Many a man who takes pride in being a father, at the same time "resents sharing his wife with his children." Many parents who want their children to grow up still hobble them with excessive supervision. The woman, and the man, who reaches menopause, suffers from more than an endocrine imbalance. And touching upon this, I recall a piece of literature addressed to the older generation, which was entitled, *Don't be your Age,* and I wondered why. Why not be your age and like it?

Health education, to be effective, must appreciate the negative as well as the

positive endogenous motivations, and must take account of them in its plans and activities.

These negative phases are not the product of ignorance, nor are they to be dissipated by a direct attack—"fact in hand." The antivivisectionist is not to be persuaded by a recitation of the achievements of laboratory research, and the woman who is sure that the massage given to her by a quack provides the medicine she really needs, may be quite right, in the light of the particular distortions which affect her life.

Here I must wind up my argument, and I must do so by first offering an apology in the sense of explanation, as to why I have been so critical and censorious of our current health education practices and materials. In part I feel free to do so because the indictment embraces me no less than the other fellow. Also I recognize that the health educator labors under certain disabilities which, to a large measure, relieve him of blame.

Early in my presentation I made note that much of our health education is in effect disease education. Here precisely is the dilemma which impales the health educator, for though he is called health educator, his job, the job for which he is paid, is in the main to teach disease rather than health. This is so not because he is derelict and stubborn, nor because his superiors and associates are such. The fact is that modern health education has taken its cue from modern medicine; and modern medicine, I regret to say, has long been, and still is, more preoccupied with disease than with health.

Here one might properly ask, why then belabor the health educator? In justification I must offer two considerations: First, that the future of the health educator is bright, and his opportunities are greater than ever before. And I would have us miss out on none of those. And, second, I recall that the modern health education movement, whose origin I date at about a century ago, was vastly ahead of the then modern medical science and practices. Indeed, as I have pointed out on previous occasions, e.g., in "Humanism and Public Health" (*Annals of Medical History,* 1941—Boston Medical Society), some of the far-seeing vision of the pioneering public health movement was actually obscured by the advent of the etiological school of medicine with its ideas on specific etiologies and specific therapies.

Role of the Voluntary Agency in the Overall Health Program*

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IN these days of changing values, with more and more emphasis being placed upon the functions of government and less and less upon the responsibilities of the individual, it is important that we stop and take stock, and attempt to evaluate an institution so distinctly American and so thoroughly "free-enterprise" as is the idea of a nonofficial, self-constituted group voluntarily assuming responsibility in a matter as important to the state as is the health of its citizens.

It should be pointed out that the voluntary health agency as we know it today is distinctly a phenomenon of our own western civilization: it is as American as pork and beans, free elections, and universal free public school education. Nowhere else in the world do we find public spirited people banding themselves together for the strictly altruistic purpose of serving their neighbors and their communities as is done in the United States. In other countries the support of such movements seems to partake to a much greater extent of a governmental or semi-governmental nature.

An interesting example of this partial or total dependence upon governmental assistance is found in an article published in the *Texas Cancer Bulletin*[1] describing the use of postage stamps as a fund raising device. It seems that in support of programs of cancer control, 13 countries have issued no less than 76 postage stamps. Some countries have used regular postal issues for this purpose; others have issued postal tax stamps which do not pay postage, but which must be placed on every letter passing through the mails during certain restricted periods. Still other governments have used semi-postal stamps, that is, stamps which are sold for a premium over their face value; the premium goes to the cancer fund. Similar stamps have been issued in these and other countries for the support of programs of maternal welfare, the care of the crippled child, the control of tuberculosis, and for other medical and public health activities. No such stamp has ever been issued in the United States. The various stamps or "seals" which are sold for such purposes in this country are strictly unofficial in character, issued by voluntary agencies.

In 1945, a study of American voluntary health agencies[2] reported the existence of 16 national, 290 state or regional, and 20,248 city or county groups engaged in 17 major fields of health activity, and estimated that there were some 300,000 board and committee members concerned with their management. This is a force to be reckoned with. For good or for bad, the weight of their influence cannot be ignored. If they are bad, so is it bad to have free speech, free assembly, free enterprise and initiative, and a government responsible to the people, rather than a

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people responsible to a government. Just how good they are depends upon what they have done in the past, what they are doing now, and upon whether there has been developed a satisfactory substitute for them. Let us attempt to evaluate the idea of nonofficial voluntary health agencies with these points in mind.

The voluntary agency with which I am affiliated here in Texas uses the triangle to illustrate the idea of the interdependence of the three groups from which we recruit our leadership, both state-wide and in our local units. The arms of the triangle are on the one hand the business or professional layman who helps us raise our money and supervise its expenditure; and on the other side, the leader of women to whom we look to recruit, train, and supervise the vast army of volunteers which is essential to the program we are undertaking. The base of the triangle we insist must be a physician, because upon him rests the responsibility for knowing and interpreting the local needs and resources of his community and their relationship to the state and national picture. To him also we look as the coördinator of the efforts of the other two sides of the triangle, to make certain that our program remains on a sound, scientific, and ethical foundation. We conceive of this triangle as being an equilateral triangle with each side of equal weight and importance, because without the financial support of the public and the devoted enthusiasm of the volunteer workers, the efforts of the physicians to reduce the unnecessarily high mortality from cancer would be difficult if not impossible.

The triangle to us represents a form of unity, continuity, interdependence. Each of the three sides we conceive of as a unity within itself, but until they become joined together as a triangle they do not realize their full potentiality of strength, union, and mutual assistance so vital to our success. Each comes into contact and joins forces with the other in a program of mutual respect, assistance, and effort—and in a situation of mutual dependence, for the triangle would cease to exist if one of the arms were removed.

Why cannot the symbol of the triangle be applied with equal validity to a description of the place the voluntary agency should occupy in the total health program?

The ultimate responsibility for the care of the sick person, whether as a unit or as a group, must rest on the shoulders of the practitioner of medicine. It is he who comes into contact with the patient; it is he who determines in a very large measure what is done to or for the patient, and whether in a given instance there shall be applied the sum total of the available knowledge, skill, and physical facilities for the relief of his suffering, the healing of his body—or for the protection of his neighbors, if the patient happens to be suffering from a communicable disease. Because this ultimate responsibility for the care of the patient and for the direct application of any public health program thus in large measure falls to the practitioner of medicine, let us make the physician the base of our public health triangle. Then let us designate the voluntary health agencies as one of the other arms. Now let us finish the triangle by considering the local, state, regional, and national official health agencies as constituting the third arm of our symbol.

So that we may form an estimate of what has been accomplished by the national voluntary health agencies, what may be expected from them in the future, and whether they should form one arm of an equilateral triangle which is completed by the practising physicians and the official, governmental, health agencies, let us look for a moment at two of these distinctly American institutions which are among the leaders in point of size: the National Tuberculosis Association because it is the oldest, and

the American Cancer Society because it is the most recent to reach the "big size" category.

When the National Tuberculosis Association was formed in 1904, this disease was claiming close to 200 lives out of every 100,000 inhabitants of the United States. People for the most part refused to mention the disease by name, referring to it as consumption, a decline, or a lingering illness. Tuberculosis hospitals were almost a thing unknown. The first tax-supported hospital for tuberculosis patients in the United States[3] had been opened in 1897 in Cincinnati, Ohio. Massachusetts in 1898 had led the way with the first state sanatorium, inspired by the successful demonstration of the value of such care made by Bowditch at Sharon, Mass. Of course, Trudeau had blazed the trail with his Little Red Cottage at Saranac Lake, N. Y., in 1885, and other pioneers were attempting to preach the doctrine of rest, nourishment, and isolation. But, for the most part, persons suffering from tuberculosis were permitted to die untreated, huddled closely with others of their family in sanitary conditions best designed to facilitate the passing on of the chain of infection.

Despite overwhelming evidence that the control of tuberculosis in the individual depended upon a type of rest and nursing care difficult to secure except under hospital conditions; despite irrefutable statistical proof that the control of the disease in a community depended upon early and strict isolation of every patient capable of infecting his neighbor, the growth of the sanatorium idea was slow and difficult. The history of the National Tuberculosis Association is full of records of valiant fights made by local groups of volunteers banded together with their local physicians, and of their ultimate success in securing the establishment of adequate institutions for the care of these patients, and the enforcement of suitable regulations regarding the reporting of the disease and the control of the infectious patient. Today, the philosophy of early case finding, prompt treatment, and adequate supervision is accepted without argument, and effective control programs are in progress from coast to coast. The tuberculosis death rate has dropped from the 200 per 100,000 reported at the turn of the century, to 33.2 per 100,000 in 1947.[4] The credit for this dramatic result must be given in very large measure to the vision, the courage, the enthusiasm, and the unflagging efforts of the National Tuberculosis Association.

But who builds these hospitals; who administers these control measures? Not the National Tuberculosis Association nor its affiliated local units. For the most part this is the function of the city, county, state, and federal governments. Who uses the institutions? Not the board members of N. T. A. nor its local groups. No, the institutions are used by the practising physicians who send to them the patients whom they find to be suffering from the disease.

Thus we have the public health triangle: the medical profession pointing out the need; the voluntary agency creating the public demand; the official agency supplying the facilities to meet the need and satisfy the demand; the three arms of the triangle joining together to take care of the sick citizen and a health threatened community. But this unity and this continuity do not end here: the doctor through the use of the facility and the voluntary agency through its continued efforts, give to the official group the backing they need to secure popular support for the continued appropriation of the tax funds necessary for the support of the program. So we have again the equilateral triangle of mutual respect, assistance, and effort—and again the situation of mutual dependence, with each arm of the triangle requiring the support of each of the others.

Let us now turn to the American Cancer Society, the newest of the national voluntary health agencies to achieve large stature. This agency was founded by a group of physicians and scientists who were convinced that they knew enough about the diagnosis and treatment of cancer to make a material reduction in its death rate if only some way could be found to bring patients under adequate treatment at an earlier stage of the disease than that in which it was usually being seen by those qualified to treat it. Although organized in 1913, its real growth in terms of money raised did not start until recently. The survey of health agencies mentioned above[2] credits this organization with having raised $150,288 in 1943. Five years later, in 1948, the American public contributed a total of some $13,090,000.

This explosive growth was due in part, of course, to the reorganization of the Society which was started in 1943, but this growth and even this reorganization were made possible only by the persistent hammer, hammer, hammer of the pioneer workers in this field. Like the early members of the antituberculosis groups, these early cancer workers found the disease cloaked in a conspiracy of silence. Fear, superstition, ignorance, and social tabu combined to make the very word unmentionable, and attempts at public education or other control measures were unpopular in the extreme. It is only within the past two or three years that cancer has been mentioned as the cause of death in an obituary notice. When the society was organized, such a death was considered a family disgrace which had best be overlooked in the interest of common decency and a charitable sympathy for the survivors. The money spent for cancer control by official agencies was negligible. Research into the nature, causes, and methods of effective treatment of the disease were isolated, sporadic, and pitifully inadequate.

Today, 25 per cent of every dollar contributed to the American Cancer Society is allocated to the support of a national research program under the supervision of a special Committee on Growth of the National Research Council. One-fourth of $13,000,000 is an impressive figure, but this is by no means the only money now being spent for cancer research. Spurred on or inspired by the activities of this voluntary agency, the governmental appropriations for this purpose have increased in truly significant fashion.

But research is not the only practical and productive avenue of approach to the cancer problem. Research is needed, to be sure, but enough is now known to cure at least a third of the close to 200,000 annual victims if public education were backed by adequate facilities. The bulk of the American Cancer Society's money goes for these elements of the control program.

Here also they are being joined by the official agencies. As an illustration: The National Cancer Institute, an activity of the Federal Security Agency, was organized in 1937, in large measure through the urgings and assistance of the American Cancer Society and of the group of scientists who comprised its directorate. The budget of this federal agency for each of the first two years was $400,000. By 1949 the annual appropriation by Congress had risen to $14,000,000 and the Institute had enough funds to permit it to allocate to the several states no less than 2½ million dollars to permit the state health departments to increase their cancer control activities.[3] Texas's share of this distribution was $115,590.

This federal money is by no means the only money allocated from tax funds for cancer control, including research. State health departments and state supported institutions becoming interested in cancer control are today the rule rather than the exception. Texans may

well be proud of the fact that when their state legislature established the M. D. Anderson Hospital for Cancer Research in Houston they charged it with responsibility not merely for the care of cancer patients but also for the conduct of cancer research and of programs of cancer education.[6] The importance of its research functions was symbolized by its very name; its educational responsibilities were emphasized by the fact that the hospital was made part of the University of Texas, and not part of the state's welfare or charity program.

If this dramatic increase in tax supported cancer control activities is not the result of the pioneer efforts of the American Cancer Society, then it must be recognized as a remarkable coincidence that such sudden increase in tax support coincided with the equally dramatic success of the society in its other fields of activity.

So again we have the public health triangle: A group of doctors dissatisfied with their results and seeking help; a voluntary agency leading the way in efforts to secure the help the doctors were seeking; and finally the governmental agencies rallying to the support of both groups with the resulting creation of a powerful, effective, and increasingly successful instrument for the control of a serious health problem. But again we have the situation of mutual dependence, for the physician through the use of the facility and the voluntary agency through its continued program of education must maintain in the minds of the public a willingness to back the official agencies in their continued requests for tax support.

Time does not permit the presentation of other examples of how this triangle works. Numerous other health agencies present similar pictures of effort and of success. Perhaps this evolution of the triangle can be considered one of the outstanding developments of the first hundred years of public health in America. Is it too much to hope that in the next hundred years we may see a further development and solidification of this idea?

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Hospitalization of Cases of Communicable Diseases Together with Certain Considerations of the Isolation Techniques and Nursing Procedures Used*

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THE hospitalization of cases of communicable disease has always been a problem to the hospital administrator and to the public health official.

The *1948 American Medical Association Directory of Hospitals* lists 65 isolation hospitals with a bed capacity of 12,556. These bed listings of isolation hospitals have the lowest occupancy rate of any other hospital category—43.6 against 77.1 for general hospitals. There are only 18 states that have special isolation hospitals. These naturally are all supported by official funds operated as a city, a county, or city-county function. By far the majority of the separate isolation hospitals are located in populous states east of the Mississippi River. Seven states—Massachusetts, New York, Pennsylvania, New Jersey, Michigan, Wisconsin and Illinois—account for 71 per cent of such separate facilities. In many instances such isolation hospitals, designed and built for acute contagious diseases, are used partially for housing tuberculous or chronically-diseased patients. Questionnaires sent to 41 such isolation hospitals representing 15 of the 18 states were returned in 15 instances from 8 states. In 1931 there were 86 isolation hospitals registered. This number has fluctuated since then with a low of 52 in 1941 and 1942, to a high of 86 in 1931, with a median of 61. It is to be noted that the number of persons admitted to such hospitals doubled in 1945 over that of 1944 (48,387 to 99,599) and in 1946 made a 49 per cent increase and in 1947 an 11 per cent increase. In no other 4 year period were such consistent increases in admissions seen during the past 17 year period. No other service division showed a comparable increase in admissions during this last 4 year period. This is especially significant, in view of the fact that these same facilities showed the lowest occupancy rate as noted above.

It would appear, that since the isolation hospital is found in relatively few places and since the general hospitals must offer some service for the contagious case of one sort or another, be it in a separate wing, a special ward, or even a group of isolated rooms, there is need for establishing a set of minimum standards or procedures.

Questionnaires were sent to 126 general hospitals located in all of the states in the Union. Hospitals were selected with bed capacities of 200 or more. In certain states there were no hospitals

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of that size. In such instances the largest hospitals were selected. Seven states had no hospital of 200 beds or more. Replies were received from 60 hospitals (47.6 per cent of those queried), representing 30 states. It would appear that the distribution of the states replying is such as to give a fair representation of practices throughout the country.

Queries were also sent to the 48 state health officers to establish whether any state laws existed covering the admission or isolation procedures of hospitals admitting or caring for cases of communicable diseases. Replies were obtained from 35 state health officers. In general, most state health officers point out that there are no laws covering the admission practices or isolation procedures for cases of communicable diseases. In only 6 states is there more than a very general statement about the required provisions in handling contagious diseases in hospitals. Indiana and Massachusetts have the most explicit requirements of all states replying to this inquiry. Sanitary Codes in many instances do have special references to hospital control measures as they apply to epidemic diarrhea of the new-born.

Not a few of the state health officers expressed the opinion that at the present time the general hospital should accept cases of communicable diseases.

Fifty-nine of 60 replies from general hospitals lent themselves to analysis.

I. ADMISSION POLICY

a. admits all types of cases	26	
b. admits certain types of cases	27	
c. admits no communicable diseases	6	
	—	59

Eighteen of the 33 hospitals that did not admit all cases of communicable diseases stated that patients who developed a communicable disease after admission were transferred to another hospital for care.

Five of the 59 general hospitals analyzed stated that they contemplated some change in their policy of admission, indicating that new quarters were being added, or that some additional disease categories would be opened to admission such as poliomyelitis, etc. Forty-seven indicated that no change in policy was contemplated. In several instances it was indicated that the policy was dictated largely by public opinion rather than by scientific fact or medical conviction. It would seem that where the concept of the "pest house" had been well established, the fear of admitting contagious diseases to general hospitals runs strongest.

The facility of the general hospital most commonly used for cases of communicable diseases was the medical floor. The distribution of the various communicable disease entities in the two types of hospitals according to the facility employed is shown in Table 1.

The general hospitals which admitted only certain types of cases showed a fair consistency, since cases of typhoid, paratyphoid, amebiasis, bacillary dysentery and food infections were admitted with comparable frequencies as were pneumonia and influenza—27 and 25. Poliomyelitis was admitted only to about 50 per cent of the institutions. Some of the low rates of acceptability may have been due to the fact that this disease did not occur in all sections of the country. It was interesting to note that two hospitals would not admit trichi-

TABLE 1

	Special Wing	*Separate Building*	*Medical Floor*	*Pediatric Service*	*Special Room*	*Special Ward*	*Other*
Gen. Hosp. admitting all patients	320	155	492	32	143	521	79
Gen. Hosp. admitting certain patients	135	114	621	48	147	131	7
Total	455	269	1,113	80	290	652	86

nosis or tetanus. It was equally significant that only 6 hospitals of the 27 admitted scarlet fever, but 22 admitted streptococcic sore throat. Leprosy was not acceptable to 20 hospitals, rabies to 11, actinomycosis to 10, and anthrax to 17. It was reassuring to see that the syphilitic was persona grata in 22 of the 27 hospitals.

II. ISOLATION PROCEDURES

A. *Eating utensils*—It was a common practice of all hospitals admitting communicable diseases (53) to *handle dishes separately*. In one instance the reply was equivocal and in another it was stated that the separation applied only to certain specific diseases.

B. *Linen*—Forty-nine of the 53 hospitals admitting contagious diseases also *handled the laundry separately*. Three stated they did not and in one instance no statement was made.

C. *Bed Pans and Urinals*—Forty-eight of the 53 hospitals stated that they had a special procedure for sterilizing the bed pans and urinals used for cases of communicable diseases. Four stated that they used no special precaution other than that used for all such equipment, with the exception that in one instance special procedures were used for typhoid and dysentery. Twenty-three stated that the same equipment after cleaning or "sterilizing" was used for other patients; 24 said they were stored separately. Six did not report one way or the other. There was a great variety of ways in which bed pans and urinals were made "safe" after being used for cases of communicable diseases. Methods and frequencies used were as follows:

a. washing plus sterilizer	30	
b. boiling for lengths of time 5–30 minutes	13	
c. autoclaving	7	
d. simple washing	1	
e. application of chloride of lime	1	
f. not stated	1	
	—	53

In addition, in 11 instances some of the procedures mentioned above were combined or creosol or lysol was additionally applied.

D. *Wearing of masks*—37 stated that masks were worn routinely, with these qualifications: 3 stated that they were worn only for respiratory diseases; 4 indicated that it depended on the disease; and 1 stated that they had trouble in getting their physicians to wear them.

Of the 15 who stated that masks were not routine, one stated that it was required for cases of tuberculosis, and 2 hospitals required it for tuberculosis, diphtheria, meningitis, and scarlet fever.

One made no report.

E. *Dishwashing*—There was tremendous variation in the methods of washing dishes.

Twenty-five used boiling alone for 5-30 minutes. In 5 instances the additional statement was made that paper cups alone or paper cups and plates were also used.

In 8 instances, boiling from 10 to 30 minutes plus another procedure was used, such as steam at various pressures and for various lengths of time, automatic rinsing, soap and water, and soaking in lysol.

Six hospitals reported steam alone. Here there was considerable variation, from just steam without any reference to time or pressure to 25 lbs. for 20 minutes. Here too in 2 instances partial paper service was used.

Automatic dishwashing alone was the practice in 8 institutions with 8 different techniques employed with variables of time and temperature. Other miscellaneous methods were noted in 6 hospitals:

1. washed in "sterilizer" in sterile solution (?) for 20 minutes plus automatic dishwasher.

2. hot water at 150° F. for 20 minutes.

3. lysol for 20 minutes—washed in water plus soap—steam at atmospheric pressure for 20 minutes.

4. complete disposable paper service in 2 instances and in several other cases some paper service was used in conjunction with another method.

F. *Laundry*

a. *Collection.* Fifty hospitals stated that all communicable disease laundry was collected in separate containers. (Type containers used were paper, mesh bags in clean hampers, galvanized cans, etc.)

One hospital added it to other laundry after a chemical soak; and in 3 hospitals the additional fact was added that the collection was done by orderlies.

In 2 instances no statement.

In reply to a specific question as to the use of common chutes, replies were yes 16; no 29; not stated 8.

b. *Sterilization*

1. Site of sterilization
   - 1.1 laundry—42
   - 1.2 fumigation plant—1
   - 1.3 separate room—1
   - 1.4 on the floor—2
   - 1.5 bacteriological department—1
   - 1.6 university laundry—1
   - 1.7 not stated—5
2. Method of sterilization
   - 2.1 steam alone—5
   - 2.2 washed with other linen—5
   - 2.3 washed separately—4
   - 2.4 chemical treatment—10
     Lysol (3), $HgCl_2$ (1), $KMNO_4$ (1), Nuzon (1), 2% Chlorine (1), Antiseptic in N_2O (3)
   - 2.5 autoclaving—2
   - 2.6 washing at high temperatures—6
   - 2.7 multiple washings—1
   - 2.8 boiling—8
   - 2.9 not stated—12

III. NURSING SERVICE

Twenty-three general hospitals indicated that the same nurses cared for communicable as well as for non-communicable diseases; 29 stated that two different groups of nurses were used. One made no statement.

Forty-six institutions reported that the nurses caring for contagious cases were trained specially in communicable disease nursing and isolation technique; 6 hospitals had nurses who were not trained in such technique, and 1 did not report.

The source of training was reported as follows: on the job—35; affiliation in a communicable disease hospital—8; postgraduate course—1; not stated—2.

The replies on the length of training were extremely varied and showed no discernible pattern.

REVIEW OF MEDICAL ASEPTIC OR ISOLATION TECHNIQUES

In a review of a representative sample of aseptic techniques employed in this country, it would appear that, by and large, a very wide margin of safety is maintained beyond that required by the nature of the diseases handled and not justified by the recorded observations.

The techniques are directed toward controlling:

1. admission of the patient
2. location of the patient in regard to other patients
3. immediate hospital environment
4. actions of personnel caring for the patient
5. the actions of persons visiting the patient
6. all articles with which he comes in contact and which pass out into the service part of the hospital or back to his home
7. disposal of excretions and secretions
8. the disinfection of the individual upon discharge

Admission of the Patient

There is fair uniformity in the fact that a recognized case of communicable disease should be admitted directly to his room and if this is not done that the general admitting room remove covers from tables, stretchers, etc., and that instruments used in the diagnostic procedures be "sterilized."

The Location of the Patient in Regard to Other Patients

Measles, chickenpox, and smallpox are regarded as the greatest offenders in cross-infections and it is generally agreed that such patients might very well be treated with great respect and wherever possible kept to themselves. There is

further agreement that spacing beds—5 to 6 feet apart is adequate to defeat spread of disease by droplet infection. No mention is made of the use of vapors or specific methods of handling floor dusts. No specific references are made to fixed intervening walls between patients.

Immediate Hospital Environment

There are few discrepancies here also in defining the clean and contaminated objects about the patient; although considering the patient with tetanus, trichinosis, and undulant fever in numerous instances as having a contaminated hospital environment is not in keeping with the known facts. In several hospitals the contaminated area is held to include corridors outside of patients' rooms which might be considered a product of over-caution.

Action of Personnel Caring for the "Contagious" Patient

The gown technique, hand washing, the separation of clean and contaminated articles within the contaminated area or unit is the closest approach to "standard." However, there is great difference expressed in the number of gowns needed to carry out this program. One manual stated that "a gown will be discarded following each use unless a limited supply is available." [*Sic!*]

There is also no unanimity about the use of masks. The opposing viewpoints are brought into sharp focus in one large hospital, where two medical schools work the same hospital wards. The written hospital procedures require that all staff and students from "University A" wear masks when in direct contact with the patient. For "University B" masks worn by the staff are optional since it was felt by that group that the wearing of a mask gave a false sense of security.

Whether there is any value in the mask as far as protecting the patient from a "parasite laden" attendant needs further clarification. Little mention is made of the type of mask although it has been pointed out in the literature that impervious masks merely deflect and therefore do not protect, and that a mask to be effective must fix organisms in its meshes. The wet mask is universally condemned. There is variation in the recommended methods of washing it.

Action of Persons Visiting the Patient

The majority of opinion is that visitors properly gowned may sit within 6 feet of the patient, and that they should bring in nothing with them that they expect to take away.

ARTICLES WITH WHICH THE PATIENT COMES IN CONTACT AND WHICH PASS OUT INTO THE SERVICE PART OF THE HOSPITAL OR BACK TO THE HOME

At this point there is the greatest amount of contradiction. The provisions set up are by no means absolute. In the care of instruments used on patients, non-cutting ones are washed with soap and water before autoclaving; cutting instruments, however, are soaked in alcohol or some other substance. Rubber goods such as ice caps, hot water bottles, rubber rings, rubber sheets, rubber pillows, all articles which may become grossly contaminated, are washed with soap and water before air-drying. On the other hand, the linen is soaked in disinfectants, boiled or specially laundered with a variety of detergents, bleaches, and alkalis. Dishes are subjected to long periods of boiling, steam under pressure, or any one of many sterilizing or antiseptic procedures.

The extremes to which linen is sterilized or rendered "safe" in hospital practice is generally above and beyond the procedures employed in commercial laundries, which unknowingly must receive laundry from homes in which carriers of infectious agents or cases of

recognized or unrecognized disease have contributed to the laundry bundle.

Destruction of toys and books frequently advocated does not appear to be in keeping with the washing and drying of rubber sheets and their re-use.

The washing of eating utensils is handled in so many different ways that there must be confusion in the minds of persons responsible for composing the employed techniques. The frequently mentioned use of single service utensils was noted. Its economy certainly might well be explored. Recently reported unfavorable bacteriological reports on commercial automatic dishwashers raises doubts upon placing reliance on some of the techniques employed in connection with them.

Disposal of Excreta

The use of paper in various forms appeared to be almost universal for the disposal of discharges from the nose and oropharynx. Urine and feces were frequently treated with chloride of lime or some other chemical before disposing of it through the public sewer. The need for this chemical treatment in a public sewerage system might profitably be explored in view of the fact that recognized and unrecognized carriers are undoubtedly contributing daily to the sewage disposal plant varying amounts of parasites.

Dependence upon bed pan sterilizers where steam is used at atmospheric pressures does not mean that bactericidal temperatures are developed.

Disinfection of the Patient on Discharge

There appears to be good uniformity in this matter.

Too frequently no mention is made in the techniques reviewed of immunization procedures for the protection of personnel.

SUMMARY

1. Some of the procedures in the hospital and public health fields in regard to isolation procedures for the care of communicable diseases appear to be archaic.

2. There is an economic need for devising adequate and simple facilities as well as safe techniques for the hospitalization of communicable diseases in general hospitals.

3. There are contradictions in the admitting policies of some general hospitals as far as communicable diseases are concerned.

4. Some of the isolation techniques appear to need simplification, revision and in several instances deletion.

RECOMMENDATIONS

1. The American Public Health Association has a responsibility to guide the development of modern facilities and practices for the economical hospital care of communicable diseases.

2. It would be helpful if a committee were set up, consisting of a representative from the Laboratory, Engineering, and Epidemiology Sections of the American Public Health Association, representatives of the American Academy of Pediatrics, and of the American Hospital Association to consider simplifying the physical requirements for isolation units so that they can become an integral part of the general hospital, and to outline in simple terms the basic requirements for isolation techniques that will be in keeping with present knowledge of infectious disease.

Tuberculosis Clinic Organization and Practice*

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IN 1904 Dr. Hermann M. Biggs presented a paper on the administrative control of tuberculosis before the Henry Phipps Institute in Philadelphia. In his address, Dr. Biggs outlined a 10 point program which included compulsory registration of all cases of tuberculosis, free laboratory diagnosis, home supervision of cases not under the care of private physicians, economic assistance to tuberculosis families, and the provision of free dispensaries, hospitals, and sanatoria for cases of tuberculosis. In the 44 years that have elapsed since Dr. Biggs spoke in this city none of the steps in his program has been eliminated and very little new has been added.

The most significant change has occurred in the function of the tuberculosis dispensary or clinic. In its early days, the tuberculosis clinic operated either as an independent institution or as part of the outpatient department of a hospital. As such, it was concerned only with the case of tuberculosis and its contacts and played a minor role in the general health services of the community. The location of tuberculosis clinics in district health centers and the development of generalized nursing service changed all this. The tuberculosis clinic of today is just one link in the chain of public health services available to the community on the basis of the family unit. As such, it is more closely allied to the school health service, the industrial medical service, and other community health and preventive medical activities than it is to the hospital devoted solely to treatment. The use of health centers for periodic health examinations and more complete diagnostic investigations will further emphasize the separation between clinic and hospital. In fact, our clinics are now regarded as chest clinics rather than tuberculosis clinics, and are so called.

This change in the function of the clinic is reflected in its organization. Until 1943, all of the physicians in our clinics served on a part-time basis. Their primary interest was the private practice of medicine, and the responsibility of the physician-in-charge of a clinic was almost entirely confined to its clinical supervision. Since 1943, we have been placing our clinics under the direction of full-time physicians-in-charge who are exepected to do more than act as clinic supervisors. The full-time physicians are being trained to serve as district tuberculosis administrators. In this capacity, they are expected to carry on epidemiological studies, develop tuberculosis control programs, teach preventive medicine to medical students, and assist the district health officer in the coördination of our services with other community health activities. They are given every encouragement to take training in the field of public health for which funds are made available.

Improved statistical methods have been developed to help realize these objectives. Reports on the cases of tuber-

* Delivered at the Annual Meeting of the Association of Tuberculosis Clinics in Philadelphia, May 25, 1948.

culosis in each district are forwarded regularly to a central tabulating unit where they are transcribed on punch cards. Statistical analyses are made available to the district administrators to enable them to appraise the extent of their problem accurately and identify the individual cases requiring special attention. It is planned to apply similar techniques to the analysis of clinic records in the near future.

The principle of increasing the participation of the chest clinic in the health activities of the community is also carried out in our x-ray service.

The majority of the chest x-ray surveys done by the Bureau of Tuberculosis in New York are arranged with the district health center and all of the cases who require supervision receive it through the district clinics and nursing offices. A substantial proportion of the x-rays of groups of apparently healthy individuals are taken in the local chest clinics and this practice will soon be greatly expanded by the installation of photo-fluorographic equipment in several of our larger centers.

When the tuberculosis clinic was primarily concerned with the examination of cases of tuberculosis, contacts, and individuals with pulmonary symptoms, it operated on the basis of a uniform procedure. Each patient received a reasonably complete history and physical examination and was asked to return for an individual report. As other groups were included, and newer x-ray techniques were developed, this procedure was found to be neither necessary nor practicable. The separation between the dual functions of the clinic, case finding and case supervision, became more apparent. Our present clinic practice is based increasingly on a recognition of this distinction.

Case finding in tuberculosis is fundamentally a screening method. It calls for the roentgenological examination of the largest possible number of individuals in those groups in which the most tuberculosis will be found. In this category are recent contacts to infectious cases of tuberculosis, individuals with significant pulmonary symptoms, particularly those referred by private physicians, and those portions of the population which have high morbidity and mortality rates. In most such cases an elaborate history and physical examination of the chest contribute little. The principal value of the history is in the evaluation of the nature of the contact and in the differential diagnosis of cases in which significant changes have already been found by x-ray.

Our present standard medical record is a form on which biographical data, information on exposure to tuberculosis, and pertinent history, physical and laboratory findings are entered. The same form can be made a part of a continuous record for patients with pulmonary disease or contacts requiring supervision. Despite this advantage there has been a strong tendency in our service toward the wider use of the simple identification card designed only for survey patients. As the proportion of our clinic case load referred for routine chest x-ray increases, and 70 mm photo-fluorography is extended more widely, the use of this card may justifiably become the accepted practice for all types of clinic patients, except cases with known pulmonary disease.

Contacts present a special problem in that they are subjects for both case finding and case supervision, depending on the definition of "contact." and the standards of supervision followed. If the term "contact" is used to include all the associates of cases of tuberculosis, only a small proportion require supervision. Part of the contact group is examined in an attempt to find the source of infection, for which purpose a single x-ray is sufficient. The examination of most of the other contacts is done because of their consanguinity with

cases of tuberculosis. While the significance of hereditary factors, as demonstrated so brilliantly in the animal experiments of Lurie, and the twin studies of Reisner and Kallmann, is recognized, we do not feel that long-range supervision on the basis of blood relationship alone is practicable. Consequently these individuals too are x-rayed only initially.

The only type of contact receiving periodic x-ray examination in our service at present is the adolescent and young adult who has been exposed to an open case of pulmonary tuberculosis within the preceding two years. An open case of pulmonary tuberculosis is defined as a case with positive sputum or evidence of cavitation by x-ray.

Once the contact has been broken individuals who fail to react to tuberculin are not supervised further. Recent studies, however, indicate that even in this sharply restricted group of contacts most of the cases of tuberculosis are found on the first examination. Until such time as source cases are diagnosed earlier in the course of their disease, periodic supervision of contacts will probably continue to be a procedure of limited value. A simple record, on which the history of exposure and the results of the x-rays can be entered, would seem to be adequate for the case finding examination of all groups.

The clinic supervision of diagnosed cases of tuberculosis presents quite a different problem. Ideally, the only type suitable for clinic supervision is the arrested case. In practice, a substantial number of patients with active disease come under clinic observation. Almost all of them are individuals who refuse to enter a hospital or have had a period of institutional care and have left against medical advice. For most of them, little is accomplished by clinic supervision. The more coöperative patients in the group receive some benefit from medical care and the opportunities for health education which go with it. An occasional case of this type gets well while ambulant. The less coöperative patients continue to be a danger to themselves and the community and should be compelled to accept treatment or at least isolation. Clinic supervision should never be allowed to become a substitute for institutional care in the management of active tuberculosis.

The majority of the cases of tuberculosis attending our clinic are in the arrested stage, and the number is growing larger with the expansion of the mass x-ray survey program. The standards in accordance with which these cases are supervised represent a compromise between the theoretical ideal in which every case of tuberculosis is followed indefinitely and the practical limitation of available facilities. Those patients recently discharged from institutions are watched closely, at 6 month intervals for at least 5 years. In most instances, however, the lesions are discovered in the course of routine x-ray examination and may have been stable for years. Such cases are supervised less rigidly and many are discharged after relatively short periods of observation.

The technical procedures used in our services reflect our basic philosophy in regard to case finding and case supervision. The admission history taken on individuals examined for the purpose of finding tuberculosis consists of little more than the necessary identifying data and the essential facts in regard to exposure in the case of contacts. No physical examination is done, sputum is not collected, and the tuberculin test is omitted. An x-ray of every patient is taken by the cheapest and most efficient method available. For the past five years the *Magazine Cassette,* which provides rolls of fifty paper 14 x 17 films, has been used in all of our clinics and has proved entirely satisfactory. When the clinic volume exceeds 15,000 x-rays annually, photo-fluorographic equipment

is to be preferred. All films are interpreted in accordance with a 3 digit numerical code which greatly simplifies their classification. Individuals not in need of further study do not return for a report, and their x-rays and records are disposed of immediately.

On the other hand, all of the resources at our command are utilized for the patient who requires supervision. A complete history is taken, and a physical examination of the chest is done. Sputum specimens are routinely obtained and examined after concentration, and gastric lavage is performed on those patients who are without expectoration. The radiological workup includes fluoroscopy of new patients, x-rays in special positions when indicated, bronchography and even body section radiography. Every effort is made to arrive at an accurate diagnosis and appraisal of the patient's condition.

Similar completeness is aimed at in the records of cases under clinic observation. The interpretation of each film is entered on the x-ray record in addition to the code diagnosis. The latter, which was originally designed solely for x-ray findings, has been expanded so that it now serves as a clinical classification. All of our statistical tabulations are based on this code, and the 3 digit number has become the universal language of doctor, nurse and clerk in our service. The clinical records and x-rays are retained in the local clinic as long as needed and are then sent to a central storage point. Here they are photographed on micro-film and kept indefinitely. Copies of both records and x-rays are made and returned to the field units on request. In this way an opportunity is provided for the evaluation of the status of every case of tuberculosis over an indefinite period.

Additional assistance for the patient with tuberculosis is provided in the clinic through the public health nurse and rehabilitation counsellor. Every newly diagnosed case is interviewed by a conference nurse who is specially trained to help in explaining the physician's recommendations, arranging for hospitalization or other medical care, and making necessary social and economic adjustments. Rehabilitation counseling is a new service in our clinics and is still in the phase of exploration. It has already demonstrated its value for arrested cases of tuberculosis and will probably become a basic part of our program.

I hope this brief presentation has indicated that the pattern of clinic organization and practice is not a static one. Procedures now in use in our clinics reflect changes that have occurred in the course of almost half a century of continuous operation. These changes have resulted from the adoption of a broader concept of the place of the chest clinic in the general community health program, differences in the character of the clinic population, and improvement in our scientific knowledge. Further modifications are to be expected with the development of new methods of prevention and treatment suitable for application in the clinic. At present, our clinic services are organized to find and supervise cases of tuberculosis, and their practice is designed to best serve this dual function.

Safety and Effectiveness of Multiple Antigen Preparations in a Group of Free-Living Children*

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THE effectiveness of many immunizing agents and the apparent trend toward combining two or more antigens suggested a need for a careful study of multiple immunization from the standpoint of safety, frequency of reactions, and effectiveness. In June, 1943, a study was undertaken to determine the safety and effectiveness of immunization with various multiple antigen preparations.

In a previously published paper,[1] a report was made on the safety of multiple antigen preparations and the frequency of reactions among children and adults in institutional groups following injection of these preparations. Many of these had been previous artificial immunization experiences. In that paper, the plan and procedure of the study were described, and the premises outlined on the basis of which various antigens were combined. The present paper describes the results obtained in free-living school children, none of whom by history had received active artificial stimulation by injection of antigens.

This paper will deal essentially with the effectiveness of multiple antigen preparations containing diphtheria, tetanus, and pertussis antigens, as indicated by the height and duration of diphtheria and tetanus antitoxin response according to blood titrations, by the protection secured against whooping cough as measured by the agglutination test and by the results of an epidemiological survey. Some of the preparations used also contained scarlet fever toxin and typhoid fever vaccine, but the effectiveness of these two antigens will be discussed in subsequent publications. In this paper, we are reporting also on the frequency of reactions following injection of multiple antigen preparations.

This study was made with the coöperation of an advisory committee composed of Drs. Franklin H. Top, Chairman; W. L. Bradford; F. S. Leeder; John J. Phair; Philip M. Stimson; John A. Toomey; Milton V. Veldee, and with the assistance of W. E. Bunney, Ph.D., as special consultant.

The author gratefully acknowledges his indebtedness to Franklin H. Top, M.D., for his valuable assistance in the preparation of this paper.

This study was made possible by an annual grant made by E. R. Squibb & Sons, who also provided all the biologic preparations.

We wish also gratefully to acknowledge the technical assistance and untiring efforts of Maud G. Gilbert, R.N.; Mrs. Nina Rhees Smith, and Miss Marian K. Bartlett, of the study staff; the helpfulness of Dr. Donald T. Fraser, of the University of Toronto, Toronto, Canada; and of Dr. August Holm, of the E. R. Squibb & Sons Laboratory staff, in performing laboratory tests; the assistance of Mr. William Young, Mr. Raymond Ilgen, and Mr. Edward Hammis of the Saginaw County Health Department staff in preparing charts.

* Presented before the Multiple Antigen Committee of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

METHOD

Multiple antigen preparations were administered to a group of free-living children attending the rural schools of Saginaw County, which covers an area of about 1,000 square miles.

The preparations which made this study possible were obtained from E. R. Squibb & Sons, and are listed below showing the antigens of which each preparation was composed:

No 4391-2-3 COMBINED ANTIGENS
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 10,000 million per ml.
Scarlet fever toxin, tannic acid precipitated—
Dose 1: 750 S.T.D. per ml.
Dose 2: 3,000 S.T.D. per ml.
Dose 3: 10,000 S.T.D. per ml.

No. 4394-5-6 COMBINED ANTIGENS
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 10,000 million per ml.
Typhoid vaccine, 1,000 million per ml.
Scarlet fever toxin, tannic acid precipitated—
Dose 1: 750 S.T.D. per ml.
Dose 2: 3,000 S.T.D. per ml.
Dose 3: 10,000 S.T.D. per ml.

No. 12892 COMBINED ANTIGENS
Diphtheria toxoid, A.P.
Tetanus toxoid, A.P.
Pertussis vaccine, 30,000 million per ml.

The age groups of children who received multiple antigen preparations are shown in Table 1.

It is apparent from Table 1 that 84 per cent of the children were from 6 to 10 years of age, and only 11 per cent were in the preschool age group. It would have been preferable to inoculate children in the preschool group, but the obvious difficulty in keeping such children under continuous observation after injection made it necessary to utilize children in the next standard age group.

EVALUATION OF REACTIONS

The method of observation and evaluation was similar to that described in the previous paper; but, for the reader's convenience, it is described briefly as follows:

Method of Observation and Evaluation

Evaluation of reactions was made by one nurse who observed the inoculated children for 11 days after the injections were given and longer when necessary. The observations included a daily inspection of the arm for local reactions, of skin for rashes and evidence of systemic manifestations; and when indicated the temperature was taken daily until a normal level was attained. For the sake of uniform interpretation, the Advisory Committee[4] defined reactions as follows:

Local Reactions:
Mild (tenderness detectable on pressure, small area of redness)
Moderate (tenderness in using arm, large area of redness)
Severe (arm so painful it is not used)

General Reactions:
Mild (temperature not to exceed 100° F.)
Moderate (temperature not to exceed 102° F.)
Severe (temperature over 102° F.)

In addition to temperature, the severity of

TABLE 1

Age of Children in the Study

	Three-antigen Preparation Diphtheria Toxoid Tetanus Toxoid Pertussis Vaccine			*Four-antigen Preparation Diphtheria Toxoid Tetanus Toxoid Pertussis Vaccine Scarlet Fever Toxin*			*Five-antigen Preparation Diphtheria Toxoid Tetanus Toxoid Pertussis Vaccine Scarlet Fever Toxin Typhoid Fever Vaccine*			*Totals*			
Age Groups	*1 Inj.*	*2 Injs.*	*3 Injs.*	*1 Inj.*	*2 Injs.*	*3 Injs.*	*1 Inj.*	*2 Injs.*	*3 Injs.*	*1 Inj.*	*2 Injs.*	*3 Injs.*	*Grand Totals*
2– 5 Inclusive	7	13	52	1	5	8	..	..	1	8	18	61	87
6–10 Inclusive	46	29	319	19	42	166	12	5	42	77	76	527	680
11–15 Inclusive	..	5	6	2	6	4	..	..	4	2	11	14	27
Unknown	1	2	5	..	..	..	..	..	..	1	2	5	8
Totals	54	49	382	22	53	178	12	5	47	88	107	607	802

systemic manifestations, such as general malaise, vomiting, and rashes, was considered in evaluating the degree of general reactions. No mild local reactions are reported, because they are not considered important.

As can be seen in Figure 1, local reactions were infrequent in these free-living children after the first injection of 0.5 ml. of a three-antigen preparation but became more evident after the second and third 0.5 ml. injections of the same preparations.

A group of children who received 1 ml. doses of the same preparation for the second and third injections (Figure 2) had more frequent local reactions than those who received the 0.5 ml. doses (Figure 1). General reactions following 0.5 and 1 ml. injections of the three-antigen preparation were quite similar, and in over 90 per cent of the cases were mild in character. Only a very few children had a general reaction which could be considered as moderate or severe. These observations are in line with those reported in a former paper.[1]

We observed no development of "antigenic cysts" among the free-living group immunized with multiple antigen preparations. The term "antigenic cyst," although not entirely satisfactory, was suggested for use in preference to the term "sterile abscess" which was considered unsatisfactory because it was believed that in a great majority of the cases this abscess-like development was a sensitivity reaction.

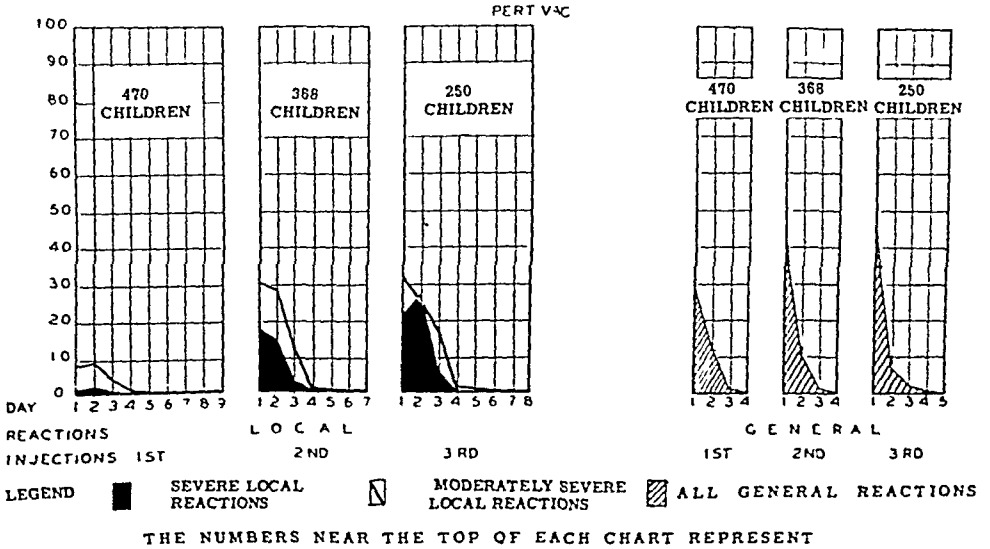
In a previous paper,[1] we reported the reactions following use of a four-antigen preparation in a group of free-living children. As might be expected, the frequency of both local and general reactions was slightly higher following the four-antigen preparation than after use of the three-antigen preparation.

COMMENTS

As a result of the observations of local and general reactions in a group of free-living children reported in this paper

FIGURE 1

REACTIONS FOLLOWING INTRAMUSCULAR INJECTIONS OF CHILDREN WITH 0.5 ML. OF ANTIGEN PREPARATION NO. 12892 DIPH TOX AP TET TOX AP PERT VAC

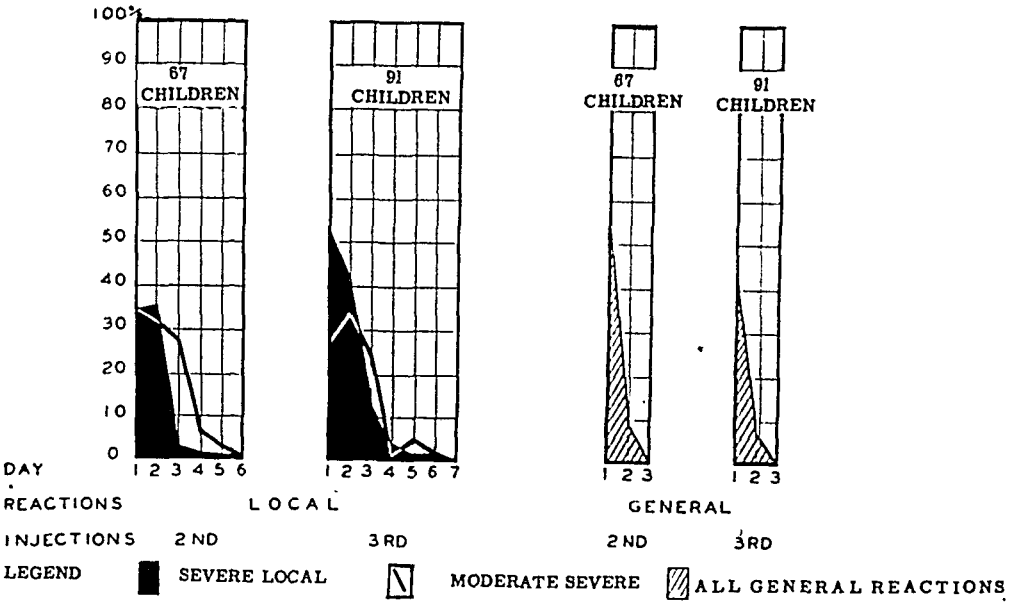


THE NUMBERS NEAR THE TOP OF EACH CHART REPRESENT TOTAL CHILDREN RECEIVING THAT DOSE;

FIGURE 2

REACTIONS FOLLOWING INTRAMUSCULAR INJECTIONS OF CHILDREN WITH 1.0 ML. OF ANTIGEN PREPARATION NO. 12892

DIPH. TOX AP.
TET. TOX AP
PERT. VAC



THE NUMBERS NEAR THE TOP OF EACH CHART REPRESENT TOTAL CHILDREN RECEIVING THAT DOSE.

and of those previously reported, it appears that we are justified in reaffirming our previous conclusions that the multiple antigen preparations are safe and that the relative frequency of local and general reactions should not discourage public acceptance of the multiple antigen procedures.

EFFECTIVENESS OF MULTIPLE ANTIGEN PREPARATIONS

The group of children used in the study, as far as we know, had not been previously inoculated against diphtheria and tetanus. Prior to inoculation, contacts were made with the parents, and only children who had no history of previous immunization were accepted in the study group. At the time of the first injection, 76 per cent of the entire group had less than 0.001 unit of diphtheria antitoxin and 24 per cent had more than 0.001 unit.

When a group of free-living children was studied in 1945, we were not able to obtain blood samples for titration in a number of cases, because some shipments of vacuum tubes used for this purpose were defective. Parents usually were present when blood samples were taken, so we sometimes felt obliged to abandon efforts to secure blood samples after trying a succession of vacuum tubes which proved to be defective. As a result in 24 per cent of the children in our study no pre-injection titer was obtained, although as stated before, all of them gave history of not having had previous immunization. Post-injection titers were obtained on the entire group. We have analyzed separately the results obtained in groups with and without pre-injection titer and found complete agreement in antigenic response; therefore, we combined these groups for the purpose of simplifying this report.

OBSERVATIONS ON DOSAGE

As shown in Figures 1 and 2, the groups receiving 1 ml. injections had a higher percentage of reactions than the children who received 0.5 ml. For this reason we abandoned 1 ml. injections. Previous experience had shown us that the size of a dose in each instance could be safely reduced if the number of injections were adequate.[2] Since we were using three injections at 1 month intervals in this study, we anticipated adequate antigenic response from the 0.5 ml. dose. Judging by the results of the few 1 ml. doses given, responses were comparable following injections of 0.5 and 1 ml. of multiple antigen preparations. This was shown in two groups composed of 39 children who received two injections of the three-antigen preparations. Twenty-one children received 0.5 ml. at each injection, and 18 received 1 ml. at each injection. All children in these two groups had less than 0.001 unit of antitoxin at the time of first injection. In the group of 21 which received 0.5 ml. doses at each injection, all but 2 showed an increase in antitoxin level; and two-thirds of this group had more than 0.1 unit 4 months after the first injection. In the group of 18 children receiving 1 ml. doses at each injection, 3 failed to respond at the end of 4 months. Of those responding, two-thirds had more than 0.1 unit of diphtheria antitoxin. These two groups were observed for 46 months and maintained their diphtheria antitoxin level remarkably well. Although the groups are small, the results were consistent at all times; consequently we considered them reasonably conclusive.

These observations confirmed our previous conclusions in the diphtheria study; namely, that dosage is not of great significance if an adequate number of injections are given. We are therefore not reporting separately the results among children who received a course of 0.5 ml. and those who received 1 ml. injections.

OBSERVATIONS ON EFFECTIVENESS OF INDIVIDUAL ANTIGENS

The effectiveness of multiple antigen preparations can be determined most readily by measuring the antigenic response to each of the individual antigens. The effectiveness of the diphtheria and tetanus antigens used in the various multiple antigen preparations was uniformly consistent and comparable, and for this reason the results were combined. These are shown in subsequent tables and charts.

RESPONSE TO THE DIPHTHERIA ANTIGEN WHEN USED IN MULTIPLE ANTIGEN PREPARATIONS

Immunity response to the diphtheria antigen used in multiple antigen preparations was determined only by blood serum titrations. As in previous studies [2-4] the Schick test was not used because the test itself has an antigenic effect, especially on a child with previous diphtheria inoculation experience. Elimination of the Schick test in determining immunity response to diphtheria made it possible—

1. To observe comparative antitoxin response to the various injection procedures.
2. To determine the duration of the response without additional secondary stimulation.
3. To determine the response to be expected in routine examinations when the Schick test is not used.

The children were bled before they were given any antigenic stimulation and 4 or 5 ml. of blood were obtained from each child with vacuum tubes. As many as possible of these children were bled again in 4 to 6 months and at various intervals for the duration of the study. To determine the immunity response to diphtheria, the blood samples were titrated by a method similar to that reported in previous immunization studies.[2]

TABLE 2

Diphtheria Antitoxin Response at Intervals After Injection of Free-living Children With Multiple Antigen Preparations. Control Group Represents Results Obtained in a Previous Study Following Injection of a Single Diphtheria Antigen in a Comparable Group

(All Children Having Less Than 0.001 Unit of Antitoxin at Time of First Injection)

				5–8 Months After 1st Injection						12–18 Months After 1st Injection						20–24 Months After 1st Injection					
Dosage	*Preparation*	*Group*	*No. of Injections*	*No. Titrated*	*Children With Less than 0.001 Unit*	*Children With 0.001 Unit or More*	*Children With 0.01 Unit or More*	*Children With 0.1 Unit or More*	*Children With 1.0 Unit or More*	*No. Titrated*	*Children With Less than 0.001 Unit*	*Children With 0.001 Unit or More*	*Children With 0.01 Unit or More*	*Children With 0.1 Unit or More*	*Children With 1.0 Unit or More*	*No. Titrated*	*Children With Less than 0.001 Unit*	*Children With 0.001 Unit or More*	*Children With 0.01 Unit or More*	*Children With 0.1 Unit or More*	*Children With 1.0 Unit or More*
1 ml.	1 Antigen Diph. A.P.	Control	1	374	29	345	210	54	..	371	51	316	170	27	..	374	67	307	139	24	..
				%	8	92	56	14	..	%	14	86	54	7	..	%	19	81	35	6	..
0.5 ml.	Multiple Antigens A.P.	Study	1	78	68	10	6	4	..	..	..	.	..	..	..	3	3	..	2	1	..
				%	87	13	8	5	..	..	..	..	..	..	..	%	50	..	50	17	..
1 ml.	1 Antigen Diph. A.P.	Control	2	310	..	310	296	149	..	300	2	298	268	110	..	299	4	295	262	94	..
				%	..	100	96	48	..	%	1	99	89	37	..	%	1.3	98.7	88	31	..
0.5 ml.	Multiple Antigens A.P.	Study	2	45	2	43	43	29	6	29	..	29	24	16	..	34	3	31	30	22	9
				%	5	95	95	64	35	%	..	100	82	55	..	%	9	91	90	65	30
1 ml.	Diph. Antigen Fluid	Control	3	566	38	528	380	114	..	544	54	490	335	115	..	388	53	335	218	62	..
				%	7	93	67	20	..	%	10	90	62	21	..	%	14	86	56	16	..
0.5 ml.	Multiple Antigens A.P.	Study	3	235	..	235	235	229	170	163	..	163	163	157	107	184	2	182	182	157	81
				%	..	100	100	93	71	%	..	100	100	96	65	%	1	99	99	85	44

We did not test for a higher titer than 1 unit. The test range for each serum was 0.001, 0.01, 0.1, and 1 unit, as the immunity status of the donor was not known to those performing the titrations. Toxin dilutions were made in physiological salt solutions, as no difference between results was obtained with toxin diluted in this manner and toxin diluted with Fraser's buffer diluent. Toxin dilutions were made fresh before each titration. The amount injected into each rabbit was 0.2 ml. because the readings were more distinct than when 0.1 ml. was injected. Comparative tests with 0.2 ml. and 0.1 ml. gave identical results. The reading time was 48 to 72 hours; most often, 48 hours.

We first analyzed the data on children who had less than 0.001 unit of diphtheria antitoxin at the time of the first injection. In other words, the group was non-immune with a few exceptions. Results are shown in Table 2.*

Observations Following One Injection
(Children having less than 0.001 unit of diphtheria antitoxin at time of injection)

It was shown clearly that the diphtheria antigenic response was extremely low 5 to 8 months after one injection. The resulting figures show that 57 of 66 children (86 per cent), failed to respond at the end of 6 months (see Table 2 and Figure 3). This is in marked contrast to the results obtained after only 1 ml. injection of diphtheria A.P.T. (alum precipitated toxoid) alone, where 92 per cent of the children responded to antigenic stimulation after a comparable period.[2] Yet the study groups were comparable in every respect because the diphtheria incidence was extremely low during the two periods, and the percentage of school children having less than 0.001 unit at the time of injection was comparable as can be seen from the following:

In our previous study,[3] in a group of 1,800 children 80 per cent had less than 0.001 unit at the time of injection. This compares with 74 per cent of the children having less than 0.001 unit in the study herein reported. It is quite possible that the difference in response may be explained by the fact that a dose of 10 L_f (Limes flocculation units) of diphtheria A.P.T. is not enough for a single inoculation procedure. (See discussion of observations following three injections).

Observations Following Two Injections
(Children having less than 0.001 of diphtheria antitoxin at time of first injection)

The response following two injections of the multiple antigen preparations shows marked improvement (see Table 2 and Figure 3) compared with that after one injection. In a group of 45 children receiving two injections, 90 per cent responded to diphtheria antigen stimulation by exhibiting an antitoxin level of 0.001 unit or more 30 months after injection, 80 per cent maintained an antitoxin level of 0.1 unit or more during an observation period of 12 months.

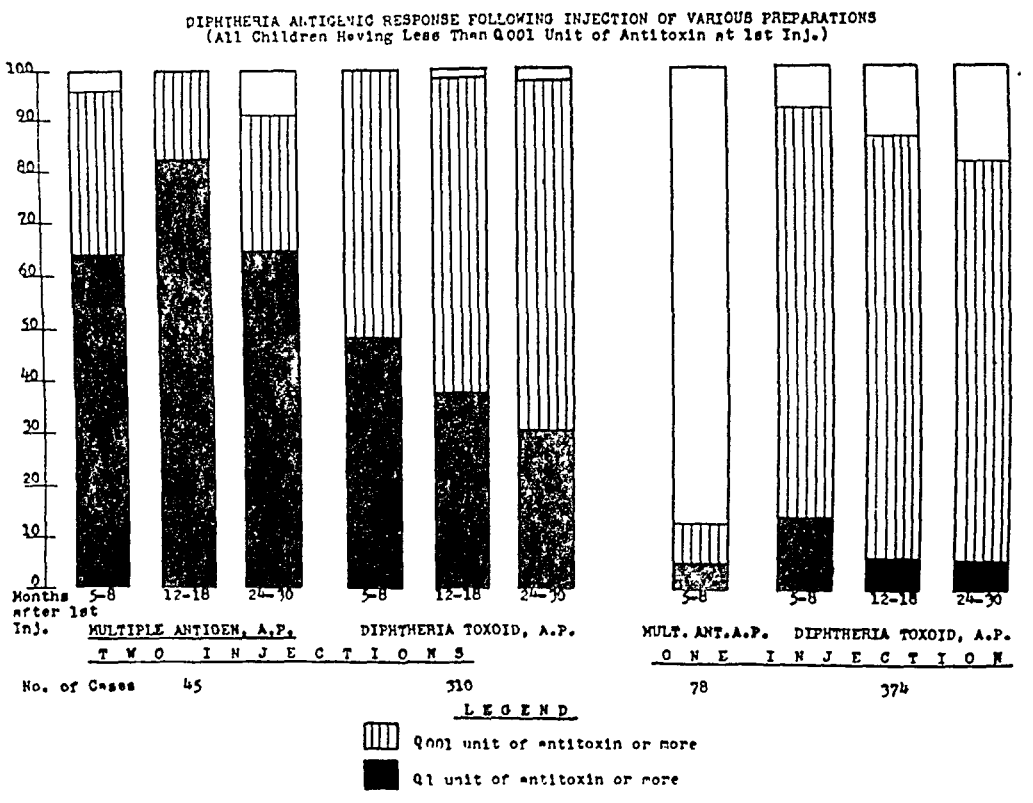
The results after two injections of diphtheria A.P.T. contained in a multiple antigen preparation indicate that, as shown in Figure 2, Table 3, diphtheria A.P.T. combined in a multiple antigen preparation produces a more satisfactory response, as measured by higher antitoxin level, than when diphtheria toxoid is given alone.

Observations Following Three Injections
(Children having less than 0.001 of diphtheria antitoxin at the time of first injection)

* Every effort was made to give the children three injections of the various preparations; however, occasionally, it was impossible to do this. Those children who did not receive the complete set of injections were observed to determine the diphtheria antigenic response after one or two injections only.

The titration work was done by Dr. August Holm, of the E. R. Squibb & Sons Laboratory; and certain check samples were sent to Dr. Donald T. Fraser, of the University of Toronto, whose findings were in close agreement with those of the E. R. Squibb & Sons Laboratory.

FIGURE 3



The diphtheria antigenic response resulting after three injections of a multiple antigen preparation was consistently satisfactory as shown in Table 2 and Figure 4.

It is important to note that diphtheria toxoid, when used alone, contained 20 L_f per ml. and was given in *two 1 ml. doses,* whereas the diphtheria A.P.T. used in multiple antigen preparations contained 18 L_f per ml. but was given in *three 0.5 ml. doses.*

A careful study of Table 2 and Figure 3 reveals that a higher percentage of children had 0.1 unit or more of diphtheria antitoxin after injection of multiple antigen preparations containing diphtheria A.P.T. than the children receiving A.P.T. alone. It shows too, that in the study group which received three injections, 85 per cent still had 0.1 unit or more of diphtheria antitoxin 24 months after injection. In a group which received three injections of diphtheria fluid toxoid alone, only 16 per cent had 0.1 unit or more 24 months after inoculation; yet, the children receiving multiple antigen preparations were given 9 L_f per injection while those receiving only diphtheria toxoid fluid were given 20 L_f per injection.

RESPONSE IN CHILDREN HAVING 0.001 UNIT OR MORE AT TIME OF INJECTION

The response to the diphtheria antigen among children already having 0.001 unit or more at the time of injection of multiple antigen preparations was uniformly excellent. This is shown in Table 3. Of the 1,211 blood samples taken from this group at different intervals from 6 to 48 months after injection of multiple antigen preparations, only 10, or less than 1 per cent, had less than 0.001 unit of diphtheria antitoxin per ml. and only 2 per cent had more than

FIGURE 4

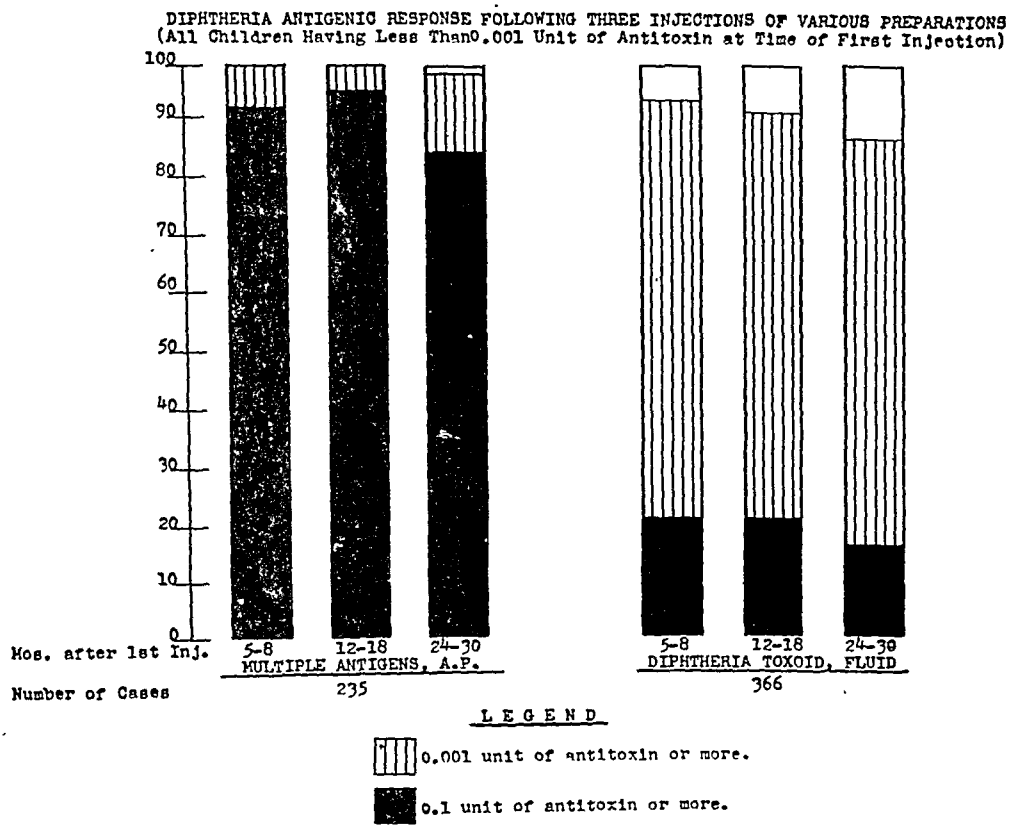


TABLE 3

Diphtheria Antigenic Response at Different Intervals After Injection of Free-living Children With Multiple Antigen Preparations

(All Children Having 0.001 Unit or More of Diphtheria Antitoxin at Time of First Injection)

Post Injection Titer Levels	*Cases*	*6–12 Mos. After 1st Injection*	*18–24 Mos. After 1st Injection*	*30–42 Mos. After 1st Injection*	*43–48 Mos. After 1st Injection*	*Combined*
(0.001	No.	8	..	2	..	10 *
	%	1.4	..	0.8	..	0.8
0.001–(0.1	No.	8	2	4	3	17
	%	1.4	1.1	1.5	1.4	1.4
0.1–(1.0	No.	20	28	23	25	96
	%	3.5	10	9	11.6	8
1.0 or More	No.	530	142	228	188	1,088
	%	93.7	88.9	88.5	87	89.8
	Total No. Titrated	566	172	257	216	1,211

* The children who had less than 0.001 unit of diphtheria antitoxin following multiple antigen injections received:

2 injections of 0.5 ml. of a 3-antigen preparation—4 cases
2 injections of 1.0 ml. of a 3-antigen preparation—2 cases
2 injections of 0.5 ml. of a 5-antigen preparation—2 cases
1 injection of 0.5 ml. of a 5-antigen preparation—1 case
2 injections of 0.5 ml. of a 5-antigen preparation—1 case

The percentage of children receiving 1 injection 1.2
2 injections 40.4
3 injections 58.4

0.001 unit and less than 0.1 unit. Over 97 per cent had more than 0.1 unit.

Comments on Efficacy of Diphtheria Antigen

(In children having <0.001 unit of diphtheria antitoxin at time of first injection)

Antigenic response to the diphtheria antigen contained in one injection of a multiple antigen preparation used in this study is not adequate.

Two injections produce an excellent diphtheria antigenic response as evidenced by the fact that 80 per cent of the children had more than 0.1 unit of diphtheria antitoxin 18 months after injection. A slow drop in antitoxin level has been noted at the end of 30 months after injection.

Diphtheria antigenic response following three injections of the multiple antigen preparation containing diphtheria antigen, A.P.T., was superior to all other results observed. The diphtheria antitoxin level was over 0.1 unit in 95 per cent of the children at the end of 18 months, with a reduction to 83 per cent at the end of 30 months after injection.

The diphtheria antigenic response in children having 0.001 unit or more of diphtheria antitoxin after the first injection is excellent, as over 97 per cent of the children had over 0.1 unit at the end of 48 months of observation.

In our opinion the efficacy of the multiple antigen preparations containing diphtheria antigen as an immunizing agent against diphtheria is striking indeed as compared with that of the diphtheria antigen when used alone. Kendrick [6] and Bell [8] made similar observations.

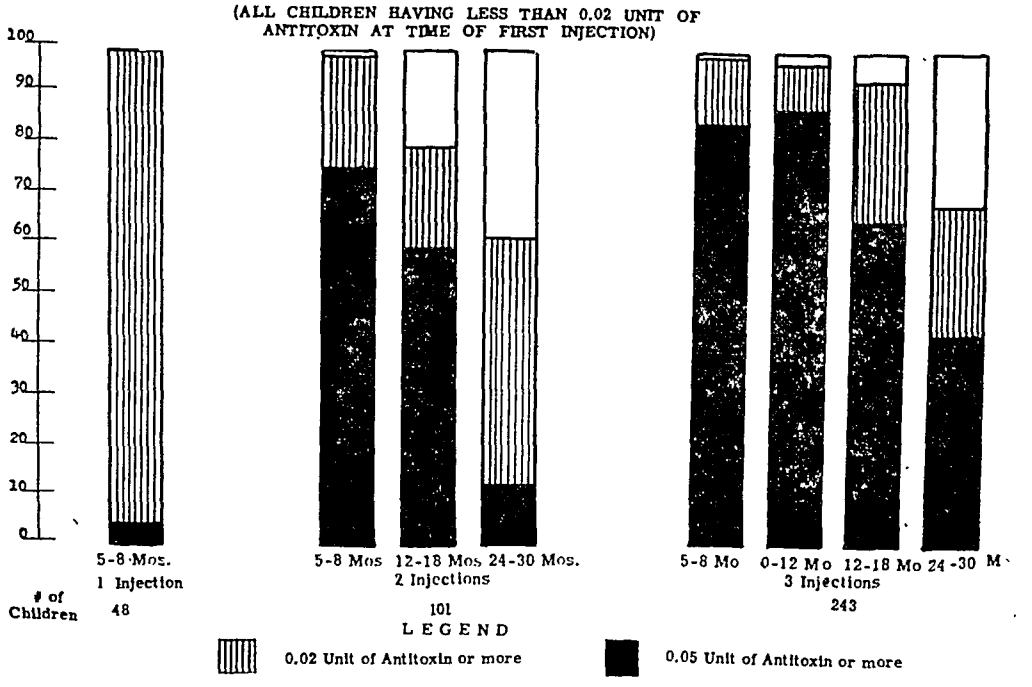
RESPONSE TO TETANUS ANTIGEN FOLLOWING INJECTION WITH MULTIPLE ANTIGEN PREPARATIONS

Immunity response to the tetanus antigen used in multiple antigen prep-

FIGURE 5

TETANUS ANTIGENIC RESPONSE FOLLOWING INJECTION OF MULTIPLE ANTIGEN PREPARATIONS

(ALL CHILDREN HAVING LESS THAN 0.02 UNIT OF ANTITOXIN AT TIME OF FIRST INJECTION)



arations was determined only by blood serum titrations. The test used is an adaptation of the mouse method given by Glenny and Stevens (*J. Roy, Army M. Corps* 70:308, 1938).

In determining the response to the tetanus antigen, we studied children having less than 0.02 unit of tetanus antitoxin at injection. We arbitrarily considered the 0.02 unit indicating a non-immune status. As with the diphtheria antigen, we evaluated the effectiveness of the tetanus antigen after one, two, and three injections.

Observations Following One Injection (Children having less than 0.02 unit of tetanus antitoxin at time of injection)

Table 4 and Figure 5 demonstrate that tetanus antigenic response after a 5 to 8 month interval following one injection of the multiple antigen preparation containing tetanus toxoid, A.P.T. is better than that produced by diphtheria A.P.T. also contained in the preparations. Although the single injection elicited mild antigenic response in all of the children (all of whom had 0.02 unit or more, and 6 per cent of whom had more than 0.05 unit), we consider the protection given against tetanus inadequate after one injection of these preparations. We have no data concerning the tetanus antitoxin level in this group beyond 8 months after injection.

Observations Following Two Injections (Children having less than 0.02 unit of tetanus antitoxin at time of injection)

Results obtained following two injections of a multiple antigen preparation containing tetanus A.P.T., are shown in Table 4 and Figure 5. There is a very marked improvement in the antitoxin level as compared with that obtained from one injection. The data indicate that 60 per cent of the children had 0.05 unit or more of tetanus antitoxin at the end of 18 months, but that from then on the titer rapidly decreased. For this reason every effort should be made to give at least two, or preferably three, injections to maintain protection against tetanus.

Observations Following Three Injections (Children having less than 0.02 unit of tetanus antitoxin at time of first injection)

The results obtained after three injections of a multiple antigen preparation containing tetanus A.P.T., were satisfactory (Table 4 and Figure 5). Of the children, 66 per cent had 0.05 unit or more of tetanus antitoxin at the end of 18 months, but afterward this level steadily decreased, with the result that 30 months after inoculation only 43 per cent of the children had 0.05 unit or more of tetanus antitoxin.

RESPONSE IN CHILDREN HAVING 0.02 UNIT OR MORE OF TETANUS ANTITOXIN AT THE TIME OF INJECTION

The response to the tetanus antigen among children having 0.02 unit or more of tetanus antitoxin at the time of the first injection of a multiple antigen preparation was good, although not as good as the response to the diphtheria antigen. Blood titrations at different intervals from 6 to 46 months after the first injection indicate that 95 per cent of the children had 0.02 unit or more of tetanus antitoxin at post-injection testings. Satisfactory diphtheria response, as mentioned elsewhere in this paper, approximated 99 per cent in a group which had 0.001 unit or more of diphtheria antitoxin at the time of the first injection.

COMMENTS ON EFFICACY OF TETANUS ANTIGEN

Mild tetanus antigenic response following one injection of a multiple antigen preparation was noted in all of 48 children observed at the end of 5 to 8 months. The group was small, and in

TABLE 4

Tetanus Antitoxin Response at Intervals After Injection of Free-living Children With Multiple Antigen Preparations Containing Tetanus Antigen (All Children Having Less Than 0.02 Unit of Antitoxin at Time of First Injection)

Preparations	No. of Injections	5–8 Months				9–12 Months				12–18 Months				24–30 Months				
		No. Titrated	Children With Less Than 0.02 Unit	Children With 0.02 Unit or More	Children With 0.05 Unit or More	Children With 0.1 Unit or More	No. Titrated	Children With Less Than 0.02 Unit	Children With 0.02 Unit or More	Children With 0.05 Unit or More	Children With 0.1 Unit or More	No. Titrated	Children With Less Than 0.02 Unit	Children With 0.02 Unit or More	Children With 0 05 Unit or More	Children With 0.1 Unit or More	No. Titrated	Children With Less Than 0.02 Unit	Children With 0.02 Unit or More	Children With 0.05 Unit or More	Children With 0.1 Unit or More
3, 4, 5 Antigens A.P.	1	48	..	48	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
		%	..	100	4	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3, 4, 5 Antigens A.P.	2	101	2	99	77	73	.	.	..	..	..	15	3	12	9	6	106	40	66	13	8
		%	2	99	76	72	..	..	..	..	..	%	20	80	60	40	%	38	62	12	8
3, 4, 5 Antigens A.P.	3	243	1	242	207	153	115	2	113	101	71	64	4	60	42	22	58	18	40	221	10
		%	0.5	99.5	85	63	%	2	98	88	62	%	6	94	66	34	%	31	69	43	17

TABLE 5

Antigenic Response at Different Intervals After Injection of Children With Multiple Antigen Preparations Containing Pertussis Vaccine (All Children Had Negative Agglutination Test at Time of First Injection)

Number of Antigens	Organisms per Injections	Number of Injections	Number in Group	5–8 Months		12–18 Months		20–24 Months	
				Positive	Negative	Positive	Negative	Positive	Negative
4	5,000 millions	1	17	4	13	..	..	..	..
			%	23	77	..	..	..	..
4	5,000 millions	2	41	12	29	10	23	1	7
			%	30	70	33	67	12	88
3	15,000 millions	2	49	16	33	9	19	..	..
			%	33	67	32	68	..	..
3	15,000 millions	3	365	200	165	201	97	..	..
			%	55	45	68	32	..	..
4	5,000 millions	3	170	96	74	66	54	30	82
			%	56	44	55	45	27	73
5	5,000 millions	3	41	22	19	16	14	5	23
			%	53	47	53	47	16	83

all cases the antitoxin level was less than 0.05 unit.

The tetanus antigenic response following two injections was marked at the end of 8 months after the first injection. However, 18 months after the first injection a moderate reduction in antitoxin level was noted, and it was further reduced at the end of 30 months.

Three injections of a multiple antigen preparation containing tetanus antigen is more effective than two injections; however, 18 months after the first injection a reduction in antitoxin level was noted and at the end of 30 months there was a marked reduction (88 per cent). This suggested that the reinforcing (booster) dose is necessary between 24 months and 36 months after the initial injection series. The antigenic response to tetanus toxoid in a group of children having 0.02 unit or more of antitoxin at the time of first injection was maintained in 94 per cent of the inoculated at the end of 18 months and in 69 per cent at the end of 30 months.

RESPONSE TO PERTUSSIS ANTIGEN AFTER INJECTION WITH MULTIPLE ANTIGEN PREPARATIONS

Unfortunately we do not have a test giving as exact information on the effectiveness of the pertussis antigen as does the test available for determining diphtheria and tetanus antigenic response. For evaluating the pertussis antigenic response, the agglutination test was used. Although it is generally agreed that the positive test indicates antigenic stimulation, there is no way to determine whether a positive titer indicates protection against pertussis. Table 4 and Figure 6 show the percentage of conversion from negative to positive after one, two and three injections of pertussis antigen, A.P.T., contained in multiple antigen preparations.

In addition, an attempt was made to evaluate the effectiveness of the pertussis antigen by observing the frequency of the disease among inoculated children following intimate or remote exposure to a case of pertussis. This was done in the following manner:

Parents of children who received the multiple antigen preparations which contained pertussis were contacted in an effort to learn:

1. Whether their children had pertussis before inoculation.
2. Whether their children had been exposed to whooping cough after injection.
3. Whether their children contracted the disease.
4. Whether the illness was severe, moderate or mild.

Observation on the Agglutination Test After One Injection

Conversion of the agglutination test from negative to positive was observed in about 23 per cent of the children 5 to 8 months following one injection of a multiple antigen preparation containing pertussis vaccine, A.P.T. (5,000,000,000 organisms per 0.5 ml.) (Table 5 and Figure 6).

Observations of the Agglutination Test After Two Injections

Conversion of the agglutination test from negative to positive was observed in about 30 to 33 per cent in the inoculated group 5 to 8 months after two injections of a multiple antigen preparation containing pertussis antigen. Two groups of children receiving various pertussis antigen preparations tested 18 months after the first injection showed that about one-third still remained positive.

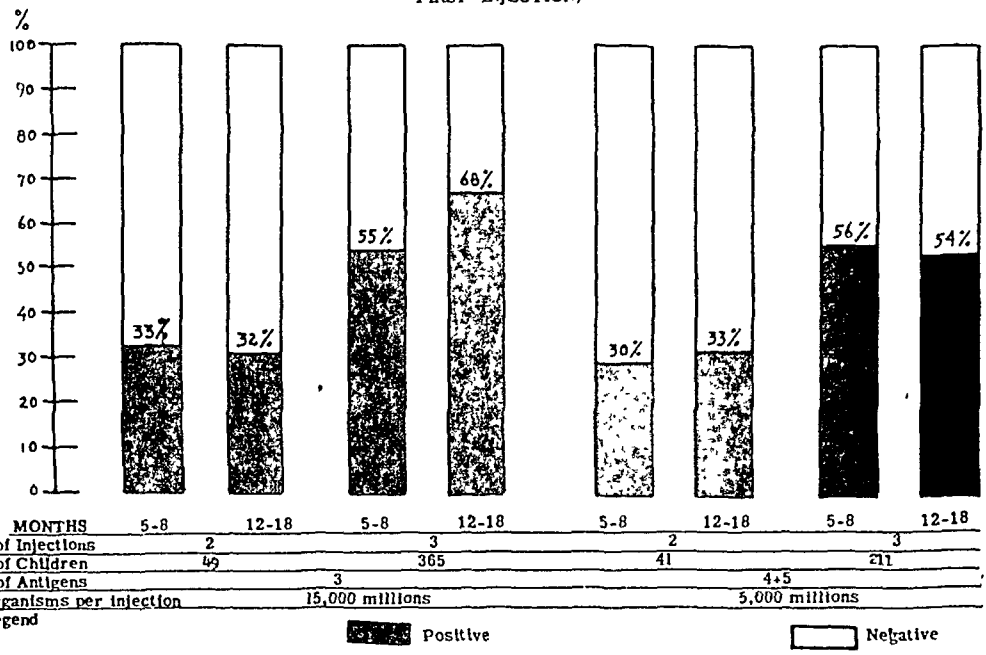
Observations on the Agglutination Test After Three Injections

In three large groups of children who received three injections of a pertussis vaccine of 5,000 million and 15,000 million organisms per injection in various multiple antigen preparations, the percentage of children who gave positive reactions at the end of 5 to 10 months

FIGURE 6

OPSONIC RESPONSE AT DIFFERENT INTERVALS AFTER INJECTION OF CHILDREN WITH MULTIPLE ANTIGEN PREPARATIONS CONTAINING PERTUSSIS ANTIGEN

(ALL CHILDREN HAD NEGATIVE AGGLUTINATION TEST AT TIME OF FIRST INJECTION)



was 55 per cent. This percentage was maintained at the end of 18 months, but was reduced at the end of 24 months after the first injection.

EPIDEMIOLOGICAL OBSERVATIONS ON INCIDENCE OF WHOOPING COUGH AMONG THE INOCULATED

Of the group of 802 children in our study, 47 children were reported as having been exposed to whooping cough some time after injection of multiple antigen preparations; 44 children had been exposed but did not develop the disease. Of the 3 children who contracted the disease, 2 had a mild course, and 1 was moderately ill. All of the 3 children developed pertussis between 6 and 12 months after receiving the first three injections of a multiple antigen preparation. Two of the 3 children who had the total dosage had a negative agglutination test 6 months after completion of a multiple antigen preparation and 1 had a positive test.

COMMENTS

The antigenic response following one injection of a multiple antigen preparation containing pertussis antigen was not great, judging by the results of the agglutination test. Two injections showed a higher percentage of positive titer and three injections of a multiple antigen preparation containing pertussis antigen resulted in a still higher percentage of positive agglutination test. A reversion in the agglutination test from positive to negative was marked at the end of 24 months after the injection of multiple antigen preparations. If the agglutination test is a valid test of antigenic stimulation, reversion of a large proportion of the inoculated group at 24 months suggests the need for booster injections in about two or three years.

A multiple antigen preparation containing 15,000 million pertussis organisms per injection appeared to be more effective than one containing 5,000 million pertussis organisms.

Laboratory results and field observations in our study corroborate the findings of Kendrick[7] and Bell[9] that the pertussis antigen in multiple antigen preparations is an effective immunizing agent.

SUMMARY

1. On the basis of our observations we recommend that the injections of multiple antigen preparations be given intramuscularly because the development of antigenic cysts is greatly lessened by using this route of injection.

2. On the basis of the observations of local and general reactions in a group of free-living children reported in this paper and of observations previously reported, we are reaffirming our previous conclusions. The multiple antigen preparations are safe, and the relative frequency of local and general reactions should not discourage public acceptance of the multiple antigen procedures.

3. The present study indicates that 0.5 ml. per injection of the antigens used in this study is effective if two or three injections are given a month apart. One injection of a multiple antigen preparation is not adequate, but two injections produce very good results and three injections produce superior results; therefore, a three-injection series is the procedure of choice.

Health workers and private physicians should be made aware that one injection is inadequate, and every effort should be made to give each child at least two injections.

The decrease in tetanus and diphtheria antitoxin levels in the course of 3 years and the reversion from positive to negative in a high percentage of cases in the agglutination test suggest the advisability of giving a booster dose about two to three years after the initial inoculation.

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The *in vitro* Test for Virulence of *Corynebacterium diphtheriae*

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THE testing of *C. diphtheriae* for virulence has been carried out, until very recently, exclusively on experimental animals, though the need for a reliable *in vitro* test has long been recognized. Using the principle of toxin-antitoxin flocculation devised by Nicolle, *et al.*,[2] for titrating the L_f unit of toxin, Elek [1] has worked out an *in vitro* method which seems entirely reliable when certain conditions are strictly adhered to.

The test, as devised by Elek, consists of the preparation of an agar base which must be clear and contain 0.3 gm. maltose and 0.07 ml. lactic acid per 100 ml. To this melted, cooled base is added 20 per cent normal horse serum, and the mixture is poured into a Petri dish (100 x 10 mm). A sterile filter paper strip, 6 x 1.5 cm., is dipped into diphtheria antitoxin containing 1,000 u/ml. drained, and placed in the center of the dish and allowed to sink into the warm agar. After solidification, the plates are dried in the incubator and inoculated on the same day. Four organisms may be tested on each plate; a known virulent strain should be included.

In describing the test and the nature of the reaction Elek says [1]:

"If the organism to be tested is inoculated in the form of a wide line at right angles to the filter paper the toxin produced by the organism will diffuse out in descending concentrations, just as the antitoxin diffuses from the filter strip. In these circumstances the points of optimum proportions for toxin-antitoxin reaction fall on a continuous line, and the flocculation which occurs along this line provides striking graphic representation of the law of optimal ratios. On each side of the inoculum a white line develops at an angle, so that a toxicogenic strain becomes virtually marked with an arrow-head."

While endeavoring to confirm Elek's work by running a long series of virulent and avirulent cultures in comparison with tests in animals, sources of error were noted and are here described.

Preliminary Experiments with Materials

A. *Preparation of Agar Base*

The first lot of medium was prepared according to the original technique. It was soon found that a clearer agar solution was obtained by omitting both filtration through paper pulp and clarification with charcoal. Difco granulated agar was used and the base was prepared by dissolving and titrating all ingredients together. The base was tubed and divided into two parts. One half was sterilized in flowing steam for 30 minutes on 3 successive days as recommended by Elek. The other half was autoclaved at 15 lbs. for 15 minutes.

Preliminary experiments were made to determine the efficacy of autoclaving. Eight different virulent strains were used, and no significant difference could be noted between the two methods of sterilization.

* From The Laboratory Division

Preliminary experiments to determine the optimum pH indicated that the reaction took place in agar most readily between pH 7.6 and 8.2. More acidic or basic media inhibited the reaction of some strains.

While working with the base medium, several media commonly used in many laboratories were tried. Difco Heart Infusion Agar and Proteose No. 3 Agar were found to be unsatisfactory even with the addition of maltose and lactic acid in the recommended amounts.

As a result of the preliminary experiments preparation of the basal medium was modified for use in our work as follows:

Proteose peptone—Difco	20	gm.
Maltose Difco	3	gm.
Lactic acid C. P.	0.7	ml.
Agar, granulated Difco	15	gm.
Sodium chloride C. P.	5	gm.
Distilled water	1,000	ml.

Dissolve the ingredients in a boiling water bath and adjust to pH 7.8. Dispense in desired amounts by measuring fairly accurately. Autoclave at 15 lbs. for 15 minutes. Store in icebox.

B. *Antitoxin*

Different concentrations of antitoxin for the filter paper strips were tried. It was found that a dilution containing 500 u/ml. (units of diphtheria antitoxin per ml.) was as satisfactory as the 1,000 u/ml. originally recommended.

C. *Petri Dishes*

For use with the regular-sized Petri dish (100 x 10 mm.) filter paper strips were cut to measure 6 x 1.5 cm. and were sterilized by hot air. Agar base was dispensed in 10 ml. amounts, to which were added 2 ml. of serum. One filter strip was placed in the center of each dish, which could accommodate 4 tests.

When running large numbers of cultures it was found convenient to use Petri dishes measuring 150 x 15 mm. Filter paper strips were cut to measure 10 x 1.5 cm. For these dishes, agar base was tubed in 25 ml. amounts to which 5 ml. of serum were added. Two filter paper strips were placed in each dish, one on each side. This made it possible to make 14 tests per dish.

D. *Serum*

As horse serum is difficult to obtain in some laboratories it was thought advisable to compare sera from other animals and to substitute a more readily available serum if it proved to be satisfactory. Sera from horse, sheep, rabbit, and human beings were compared using 36 strains of *C. diphtheriae*. Rabbit serum was found to be as effective as horse serum. Sheep serum was also satisfactory, but human serum was definitely inferior. As rabbit serum was easily available, it was used throughout this study. Citrated and oxalated plasma were found to give no reactions whatsoever.

PERFORMANCE OF THE TEST

The present technique for preparing the plates is as follows:

Melt the agar base and cool to 50° C. Add 20 per cent sterile serum, mix, and pour into a sterile dish. While the agar is fluid, place the filter strips, which have previously been saturated with diphtheria antitoxin, (500 u/ml.) in the desired position and press into the agar. Allow the plate to harden with the cover partially removed to give a dry surface, and dry further in the incubator for several hours before streaking. For this study plates were inoculated the same day they were prepared. Inoculations are made with a loop approximately 3mm. in diameter. A loopful of broth culture (24–72 hours old) is streaked in a continuous line at right angles to the paper strip across it, and at least ½ to ¾ inch on both sides of it. Inoculum should be large enough to spread easily but not large enough to spread out of bounds.

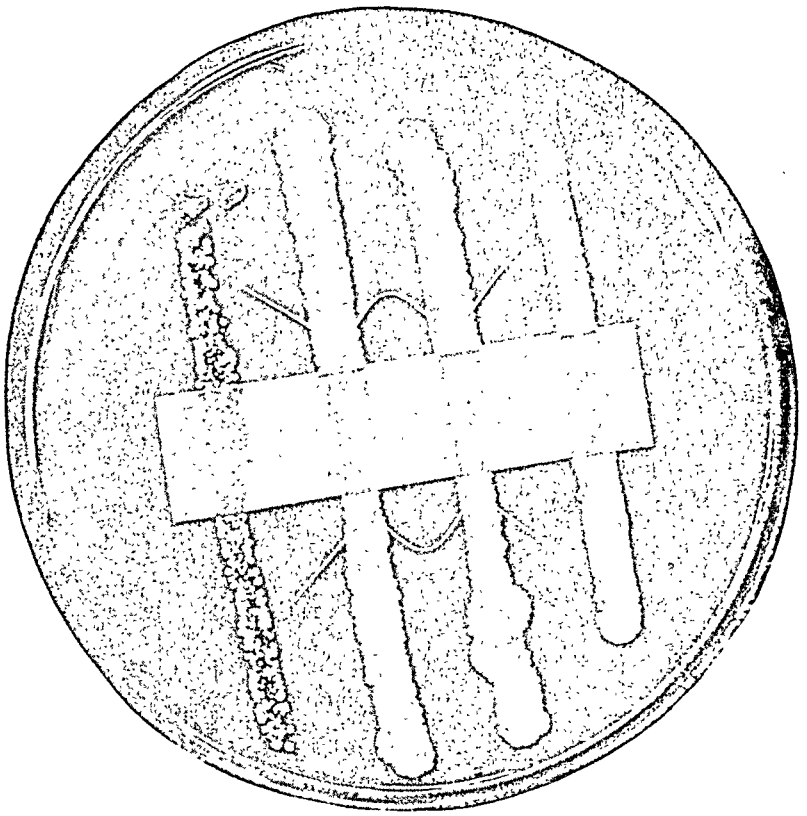


FIGURE 1—The *in vitro* virulence test in a 100 x 15 mm. plate observed after 72 hours at 37° C. For method of preparation see text. The two central cultures are virulent and each forms a "4s" reaction (four well marked oblique lines of precipitation). The two outer cultures are avirulent. The tips of the lines of precipitation between the two central streaks of growth have merged, forming arcs.

The surface of the agar should not be broken. Preliminary tests indicate that growth on slants may be used successfully and may even prove superior to broth inoculum for the *minimus*[3] cultures since these grow lightly in broth. The inoculated plates are incubated at 37° C.

Readings are made at 24, 48, and 72 hours. At 24 hours the lines of reaction between toxin and antitoxin may be very faint, and it is often necessary to search for them with a hand lens. A strong source of illumination is needed, and an ordinary gooseneck lamp with a 100 w. bulb, shaded, has been found to be satisfactory. Readings are made by viewing the unopened plate from the bottom while moving it from side to side. A little experience is needed to recognize early reactions, but strong reactions may be seen plainly without the lens and in any good light.

Extending outward from the growth of each virulent organism there appear two pairs of fine white lines of flocculation, one pair of lines on each side of the filter strip. The two lines of each pair project from each of the sides of the line of inoculation at angles of approximately 45° to the line of inoculation and away from the filter paper. Each pair of lines suggests the "arrow-head" which Elek mentions. The lines arise 6–8 mm. away from the filter paper. Early reactions are seen close to the growth of the organism and the lines increase in length

and intensity as the incubation time increases. These reactions are shown in Figure 1.

All four lines do not appear simultaneously, nor do they show the same intensity. It is therefore convenient, in reading the results of tests, to record the number of lines appearing, with a statement of intensities. For example, a reading of 1w,2s would indicate 1 weak and 2 strong flocculation lines, with the fourth line not appearing at the time the reading was made.

Strong reactions are those which may be seen without a hand lens. Weak reactions are seen only with difficulty without magnification.

A few avirulent organisms produced very indistinct lines and several produced an excessive number of lines at various abnormal angles to the line of inoculation. These developed later than 72 hours, usually only after 5 days at 37° C. These reactions, because of their diffuseness, or abnormal numbers, or late development, cause no confusion after their true nature was recognized.

RELATION OF *in vitro* VIRULENCE TEST TO TYPE OF *C. diphtheriae*

At the time this study was undertaken, large numbers of field cultures were being received from the Georgia State Board of Health. These were streaked on cystine-tellurite agar[4] for isolation. Pure cultures, morphologically positive or doubtful, were typed according to McLeod's[5] method of classification.

Virulence tests were run on rabbits with 48 or 72 hour broth cultures, and the same broth cultures were used to determine virulence by the *in vitro* method.

One hundred and forty-one cultures thus tested showed complete agreement between the rabbit and the *in vitro* virulence tests. A review of the strains tested showed that they fell into the following types:

Type	*Virulent*	*Avirulent*
Gravis	31	1
Gravis-like	13	0
Mitis	18	2
Mitis-like	38	7
Indeterminate	2	1
Diphtheroids	–	28
Totals	102	39

As no minimus strains had been isolated while this study was in progress, 24 virulent minimus strains, isolated earlier in the year, were taken from stock. At the same time a number of avirulent strains of various other types were selected for testing.

The *in vitro* reactions produced by the virulent minimus strains were generally of lesser intensity and were slower in appearance than those of mitis or gravis strains. Tests with minimus strains were also adversely affected by various factors which had little or no influence on the reactions of other strains.

For example, the first 24 minimus strains tested were included along with a series of 38 other virulent and avirulent strains. This series of test plates was inoculated from 72 hour broth cultures. The minimus reactions were weak or negative in 24 hours, but all of these strains gave strong readings in 48 hours. However, in another test in which these same 62 cultures were streaked on the test plates from solid medium, variable and unsatisfactory results were obtained.

RELATION OF SERUM TO *in vitro* VIRULENCE TEST

In seeking for an explanation of the unsatisfactory results it was noted that the rabbit serum used in preparing the agar for the tests showed considerable hemolysis. There were thus two new factors in this experiment: inoculation from slants of solid medium (Pai slants) and hemolysis in the rabbit serum. To determine which factor, if either, was

TABLE 1

Effect of Hemoglobin (or Hemolysis) on in vitro Virulence Test

Culture Number	Type of Culture	Clear Medium						Slight Hemolysis						Marked Hemolysis
		24 hrs		48 hrs		72 hrs		24		48		72		72
		S	B	S	B	S	B	S	B	S	B	S	B	S and B
A-1409a	Mitis.		3w	3s	4s	4s	4s	..	.	1w	.	1w	..	..
A-366a	Min.	2w		3s, 1w	2w	4s	4s	..	.	..	..	..	..	..
A-389	Min	1w		4s	4s	4s	4s		.		.	..	..	..
A-391	Min.			4s	4w	4s	4s	.			.	..	..	..
A-418	Min.	4w		4s	4s	4s	4s	..	..	..	.	..	..	..
A-480	Min.	3w	..	4s	4s	4s	4s		.		.	..	..	..
A-492	Min	4w	1w	4s	4s	4s	4s	..	..	..	..	..	..	..

S = Slant inoculum
B = Broth inoculum

Figures = Number of lines of flocculation
w = Weak reactions
s = Strong reactions

responsible for the poor results, 7 strains (6 minimus and 1 mitis), each in both 48 hour broth cultures and on Pai slants, were used as inoculum. Rabbit serum was collected carefully so as to avoid hemolysis, and was separated from the clot as soon as possible. Hemolysed erythrocytes were prepared by washing 2 ml. of defibrinated rabbit blood with saline, then lysing 1.5 ml. of packed cells with 13.5 ml. of distilled water. Three tubes each containing 25 ml. of agar base were melted and cooled to 50° C. To each was added the following:

Tube	*Clear Serum*	*Distilled Water*	*Red Cell Solution*	*Resulting Medium*
1	5 ml.	1 ml	0	Clear
2	5 ml	0 7 ml.	0 3 ml.	Slightly hemolysis
3	5 ml.	0	1 ml	Marked hemolysis

Test plates, with paper strips and antitoxin, were prepared from these 3 tubes in the usual manner. Slant and broth cultures of each organism were streaked side by side on each of the three types of media. Results are as shown in Table 1.

In Table 1 it is clear that inoculations may be made from slants even more successfully in the case of minimus cultures than from broth. It is also clear that some substance was released from the erythrocytes when lysed that markedly inhibited the reactions, particularly those of the minimus strains.

To determine the extent to which the method of preparation of the serum affected the reaction two rabbits were bled and equal portions of their blood were pooled in three large tubes. The three tubes were treated as shown below.

Tube 1	(A) Centrifuged immediately and serum removed	Only slightest tinge of hemolysis
Tube 2	Placed in icebox overnight Next day;	
	(B) Centrifuged, 5 ml. serum removed.	Same degree of hemolysis as (A)
	(C) Clot and remaining serum stirred. Centrifuged and serum removed.	Slightly more hemolysis than (B)
Tube 3	Placed in icebox for 48 hours	
	(D) Centrifuged and serum removed	Same degree of hemolysis as (A)
	(E) Clot and remaining serum mixed Centrifuged and serum removed	More hemolysis than (C) but still very slight

The results obtained with these sera in the *in vitro* test are shown in Table 2. The results obtained with both types of inoculum were essentially the same.

TABLE 2

Effect of Method of Preparing Serum on the in vitro Virulence Test

Culture Number	Type of Culture	Tube 1 (A) 24 hrs.	Tube 1 (A) 48 hrs.	Tube 2 (B) 24	Tube 2 (B) 48	Tube 2 (C) 24	Tube 2 (C) 48	Tube 3 (D) 24	Tube 3 (D) 48	Tube 3 (E) 24	Tube 3 (E) 48
A-391	Min.	2w	4s	..	4s	..	2w	..	..	..	..
A-366a	Min.	4w	4s	2w	4s	..	4w	..	..	..	..
A-389	Min.	4w	4s	..	4s	..	3w	..	..	..	..
A-1307a	Mitis-like	3s, 1w	4s	4s	4s	2s, 2w	4s	4s	4s	4s	4s

This experiment indicated that prolonged contact of serum with the clot materially affects the value of the medium for virulence tests with minimus strains.

This reduction in reactivity seemed out of proportion to the amount of hemoglobin released by the red cells. As potassium is also released in comparatively large amounts during hemolysis, graded concentrations of KCl up to 2 mg. per cent were added to tubes of basal medium. When used for *in vitro* virulence tests, the presence of the KCl did not cause any inhibition of the reactions. As small amounts of iron are known to inhibit toxin production, it is suggested that iron may be responsible for the unsatisfactory results in media containing much free hemoglobin.

The following method for collection of serum has been found to give consistently large yields of serum free of hemolysis:

Withdraw, aseptically, 50 ml. of blood from the heart of a rabbit; with as little force as possible place the blood in a sterile Petri dish 150 x 15 mm. in size. Allow this to stand for several hours then remove the exuded serum with a pipette. Do not break or in other ways disturb the clot. Centrifuge the serum twice to make sure that all erythrocytes have been removed.

The usual method of placing the blood in a test tube and loosening the clot before centrifugation has been found to be unreliable as some lysis occurs when the clot is disturbed in any way.

PRACTICAL APPLICATION OF THE *in vitro* VIRULENCE TEST

Using the previously noted modifications of the original test, and using, in the cases of minimus cultures, serum previously tested for reactivity with minimus strains, a total of 290 cultures were tested for virulence by the *in vitro* and *in vivo* methods during this study. Some of these tests were made during the experiments referred to above. There was complete agreement between the two methods. The data are shown in Table 3.

TABLE 3

Comparison of in vitro with in vivo Virulence Tests

Type Strains	Virulent Cultures: *in vitro*	Virulent Cultures: *Rabbit*	Avirulent Cultures: *in vitro*	Avirulent Cultures: *Rabbit*
Gravis	31	31	4	4
Gravis-like	15	15	4	4
Mitis	30	30	10	10
Mitis-like	62	62	45	45
Minimus	24	24	6	6
Indeterminate	3	3	9	9
Saccharose positive	2	2	..	..
Diphtheroids	..	..	49	49
	167	167	123	123

DISCUSSION

Assuming an effective agar base is used, and such obvious factors as pH, type of inoculum, and amount of anti-

toxin are properly adjusted, it seems evident that the most important other factor in assuring correct results by the *in vitro* virulence test for *C. diphtheriae* is the collection and preparation of the serum used in the agar base. Since many lots of serum are not satisfactory even though they show only very slight hemolysis, it is important to test each different lot for reactivity especially *with minimus strains*. Most specimens of serum will be satisfactory for the majority of other strains of *C. diphtheriae*. This is shown by the fact that in the first long series of tests, when no minimus strains were encountered, complete agreement was obtained with the animal test although no special precautions were observed in the collection of the serum.

SUMMARY

The study of the *in vitro* virulence test described in this paper has led to the following observations concerning it:

1. In preparing the medium it was found satisfactory to:
   a. Use purified Difco agar in a simplified formula which omits clarification.
   b. Sterilize by autoclave.
   c. Use diphtheria antitoxin in concentrations of 500 u/ml.
2. The optimum pH range for the reaction was found to lie between pH 7.6 and 8.2.
3. Difco Heart Infusion Agar and Proteose No. 3 Agar with maltose and lactic acid added are unsatisfactory basal media.
4. Rabbit and sheep sera were shown to be as satisfactory as horse serum. Human serum seemed to be less satisfactory than the others.
5. The reaction of minimus strains is inhibited by using serum faintly colored by lysis of erythrocytes. Other strains are less affected by this factor.
6. Some unknown substance or condition, which interferes with the *in vitro* virulence test, appears in the serum when it remains in contact with the clot for one day or longer. This may cause a high percentage of falsely negative reactions, particularly in testing minimus strains.
7. In a series of tests, including 167 virulent and 123 avirulent strains of all types, complete agreement was obtained between the *in vivo* and *in vitro* tests when the technique described in this paper was followed.
8. A positive reaction in the *in vitro* virulence test seems to be an entirely reliable indication of virulence of *C. diphtheriae*.
9. A negative reaction in the *in vitro* virulence test may be given by some virulent strains unless conditions favorable to a positive reaction by those strains be provided. In the present state of our knowledge, conditions favorable for a positive reaction by all virulent strains cannot be stated with certainty. Therefore, any negative reaction to the *in vitro* virulence test should be verified by animal inoculation.
10. The test deserves further study.

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Effect of Ultra-Violet Irradiation of Classrooms on Spread of Mumps and Chickenpox in Large Rural Central Schools*

Progress Report

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THE purpose and general plan of this study have already been described in detail in a preliminary report dealing with the experience in the measles epidemic of 1945–1946.[1] It is not necessary, therefore, to present these details at this time. Suffice it to say that the same three schools have been kept under observation, the same care in regular cleaning and checking of the germicidal lamps has been maintained, and the same methods of compiling the epidemiological data have been used throughout.

The Cato-Meridian School is still fully equipped with ultra-violet lights. In Port Byron, all places of common congregation and the classrooms housing one section of each grade through the 8th are still irradiated, while the classrooms with other sections of the corresponding grades have no ultra-violet lamps and thus serve as controls. The Mexico School, with no ultra-violet lamps, still serves as a wholly unirradiated control school.

Two minor technical improvements that were made early in the school year of 1946–1947 are worthy of note. A fixture design was developed which made irradiation of the gymnasia feasible, and the reflectors in the deep-trough corridor fixtures were modified so as to insure a level of radiant energy in the corridors equivalent to that in the classrooms. During the measles epidemic, the gymnasia had not been irradiated and the corridor fixtures were somewhat less efficient than those in the classrooms. Otherwise, the procedure as originally described has been followed consistently in every respect.

Measles was epidemic in all three schools during the same school year. Such epidemiological good fortune has not occurred with the diseases presently under discussion, but sizeable outbreaks of both mumps and chickenpox have occurred in the partially irradiated school at Port Byron. Likewise, mumps and chickenpox have each been epidemic once in fully irradiated Cato-Meridian, and two outbreaks of chickenpox have occurred two years apart in the wholly unirradiated control school at Mexico. With full cognizance of the limitations and pitfalls of epidemiological data not compiled at the same point in time, it seems worth while to present some of the salient features of these epidemics.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

RESULTS

Mumps

The epidemic of mumps occurred in Port Byron in the school year of 1946–1947. In the Cato-Meridian district, it was a year later, in 1947–1948.

The outbreak in Port Byron began in the older pupils, with the first cases in the early winter among members of the basketball team; spread to the lower grades occurred through a younger sibling of one of the team. When the episode was over, 267 cases had been recognized in an enrollment of 863, with 240 among 715 pupils in the kindergarten and first 8 grades.

Since ultra-violet lamps were installed only in the lower grade rooms through the 8th, detailed analyses have been restricted to these grades. With only 27 cases, 11 per cent of the total, occurring in high school pupils, this restriction does not seriously limit the validity of the data. The findings for the lower grades are summarized in Table 1.

Because of the relatively small numbers of susceptibles and cases in each classroom, the percentages for the individual classes are unstable and widely variable. The total figures, however, are large enough to permit a comparison.

It is not known when the last prior epidemic of mumps occurred in the Port Byron area, but it was far enough in the past for the susceptibility in the lower school to have reached 75 per cent in unirradiated pupils and 72 per cent in the irradiated group. The attack rates are also strikingly similar, 49 per cent in the unirradiated controls and 46 per cent in irradiated pupils.

In Port Byron, the mumps infection started in December; the peak was passed by mid-April, and by the end of May, the epidemic had burned itself out. Such was not the case in Cato-Meridian. There the disease did not appear until May and was still occurring with considerable frequency at the close of school in the third week of June. Accordingly, arrangements were made for the school nurse to canvass the school population for all cases of mumps that had onset within 26 days of the last known school exposure. Sixteen such cases were found and these have been included as an integral part of the epidemic. In all, 66 cases were recognized

TABLE 1

MUMPS

Port Byron School — 1946–1947

Susceptibility and Attack Rates, Kindergarten Through Eighth Grades

	Enrollment		*Susceptibles* *		*Cases*		*Susceptibles per 100 Enrollment*		*Cases per 100 Susceptibles*	
Grade	*Unirrad.*	*Irrad.*	*Unirrad.*	*Irrad.*	*Unirrad.*	*Irrad.*	*Unirrad.*	*Irrad.*	*Unirrad.*	*Irrad.*
Kg.	38	36	35	35	23	21	92.1	97.2	65.7	60.0
1	32	64†	28	53	16	32	87.5	82.8	57.1	60.4
2	42	41	34	38	18	22	81.0	92.7	52.9	57.9
3	46	43	38	34	24	15	82.6	79.1	63.2	44.1
4	43	25	29	14	18	6	67.4	56.0	62.1	42.9
5	37	42	25	28	7	12	67.6	66.7	28.0	42.9
6	38	34	21	16	7	4	55.3	47.1	33.3	25.0
7	37	37	24	21	7	2	64.9	56.8	29.2	9.5
8	24	30	17	16	3	3	70.8	53.3	17.6	18.8
Total	337‡	352**	251	255	123	117	74.5	72.4	49.0	45.9

* As of start of epidemic in each grade. Children who entered while the epidemic was in progress are classified according to their status at time of entrance.

† Includes 2 sections of first grade.

‡ Excludes 10 pupils whose history with regard to mumps is unknown.

** Excludes 16 pupils whose history with regard to mumps is unknown.

among a total enrollment of 738, with 60 among 571 pupils in the kindergarten and first 8 grades. These data are summarized in Table 2.

TABLE 2

MUMPS

Cato-Meridian School — 1947–1948

Susceptibility and Attack Rates, Kindergarten Through Eighth Grade

Grade *	*Enrollment*	*Susceptibles* ‡	*Cases*	*Susceptibles per 100 Enrolled*	*Cases per 100 Susceptibles*
Kg.	49	47	19	95 9	40.4
1	59	44	9	74.6	20.5
2	72	53	11	73.6	20.8
3	40	25	6	62.5	24.0
4	60	37	4	61.7	10.8
5	69	46	5	66.7	10.9
6	54	33	2	61.1	6.1
7	63	42	.	66.7	....
8	49	28	4	57.1	14.3
Total	5157	355	60	68.9	16.9

* Combined classes.

† Excludes 56 pupils whose past history with regard to mumps is unknown

‡ As of start of epidemic in each grade Children who entered while epidemic was in progress are classified according to their status at time of entrance.

The total susceptibility rate in Cato-Meridian was 69 per cent, only 3 per cent lower than that in the irradiated group at Port Byron. Yet many less cases per 100 susceptible children occurred for the comparable grades in Cato-Meridian, and the total attack rate was only 17 per cent.

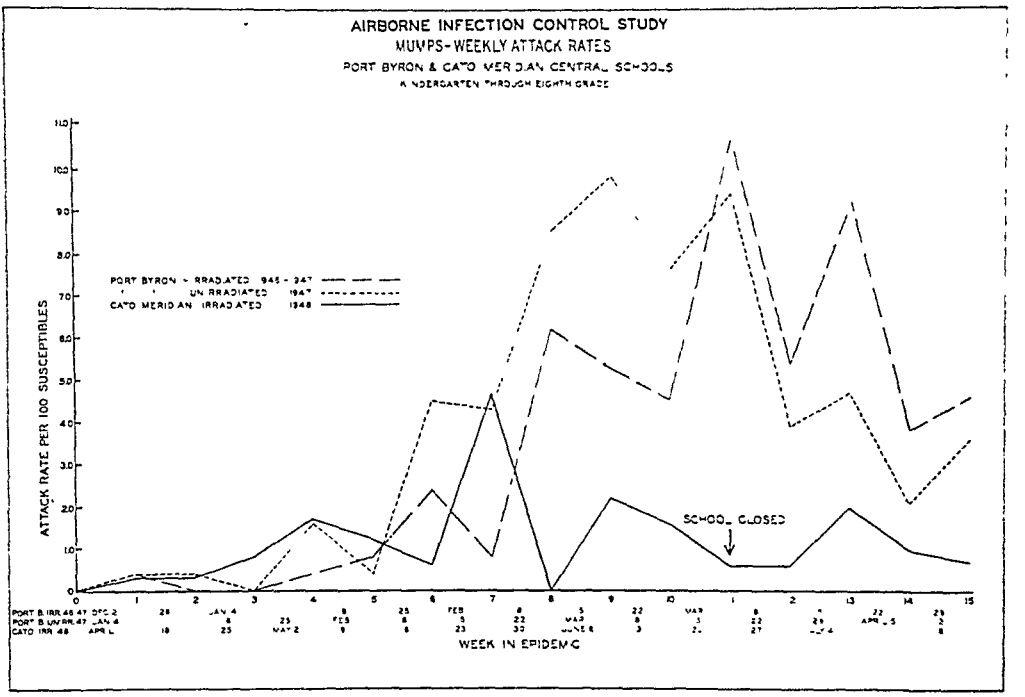
Past experience in the New York State Department of Health indicates that mumps is likely to be equally prevalent in the winter and spring months, but a definite decrease in incidence does occur with summer weather. The warm months intervened early in the Cato-Meridian outbreak and when it had been in progress for only two months, the school closed for the year. Thus, two factors may have been operative to interfere with the course of the epidemic and shorten it.

In an attempt to correct for this shortening to some extent, the full duration of the epidemic in the Cato-Meridian School has been compared with a corresponding period at the beginning of the epidemic in Port Byron, 15 weeks in all. The results of this comparison in terms of attack rates on a weekly basis are shown in Chart 1. For the most part, these rates are very different in the two schools, but the calendar months corresponding to the epidemic weeks are different also, so that the week of February 15 in Port Byron, which was marked by an increase in incidence in irradiated pupils, corresponds to June 6 in Cato-Meridian. This seasonal factor alone might account for the difference.

During the summer of 1944, mumps appeared in the Mexico district and the subsequent outbreak resulted in approximately 235 cases in the first 8 grades. Inasmuch as the school was not enrolled in this study until January, 1945, at which time over 100 cases had occurred, no attempt was made to study that outbreak. Since that time, mumps has not been epidemic in the Mexico School population.

During the mumps outbreak in Port Byron, as during the measles in the preceding year, an attempt was made to evaluate the importance of the school buses in the spread of infection through the school population. The air in the

CHART 1



buses was not subjected to a bactericidal agent. Moreover, most of the cases occurred during cold weather when the bus windows were kept closed, so that natural ventilation was at a minimum. Consequently, it might be expected that if ultra-violet radiation has any effect on the spread of mumps, children from irradiated classrooms who did not ride the school buses would have a lower attack rate than those who did ride. Such a differential was observed in the measles outbreak.

The results of an analysis along these lines are shown in Table 3. The numerical distribution of susceptibles in the four groups—riders and non-riders in unirradiated classrooms as compared to those in irradiated rooms—is not widely varied, and here again the attack rates are remarkably similar. Forty-nine per cent of susceptible bus riders from unirradiated classrooms were attacked, the same rate as for susceptible non-riders from the same environment. The rate for riders from irradiated classrooms was 45 per cent, and that for non-riders from the same environment, 51 per cent. Such findings offer no evidence that the buses facilitate the spread of mumps through the school. It should be noted, however, that the non-riders live in the village and so have a greater opportunity than the riders for extra-school exposure. This would tend to elevate the rates in the non-riding population.

TABLE 3

MUMPS

Port Byron School, 1946–1947

Attack Rates Among Susceptible Bus Riders and Non-riders, Kindergarten Through Eighth Grade

Riders and Non-Riders	*Unirradiated Classrooms*	*Irradiated Classrooms*
Susceptible bus riders	194	210
Susceptible non-riders	57	45
Cases in bus riders	95	94
Cases in non-riders	28	23
Cases per 100 susceptibles:		
in bus riders	49.0	44.8
in non-riders	49.1	51.1

Because all pupils in the Cato-Meridian School regularly ride the buses, an attempt to evaluate their importance in the spread of the mumps virus in that school is not possible with the type of analysis made above.

Chickenpox

Since the beginning of the experiment in January, 1945, four epidemics of chickenpox have occurred in the three schools under observation, one each in Port Byron and Cato-Meridian, and two in Mexico.

The major experience was in Port Byron during 1947–1948, when 109 cases occurred. The enrollment for the whole school was 890, but all of the cases were in 720 pupils in the kindergarten and first 8 grades. These findings are summarized in Table 4. Susceptibility ratios for unirradiated and irradiated pupils are essentially equal, being 36 per cent for the unirradiated and 41

TABLE 4

CHICKENPOX

Port Byron School — 1947–1948

Susceptibility and Attack Rates, Kindergarten Through Eighth Grade

Grade	Enrollment		Susceptibles *		Cases		Susceptibles per 100 Enrollment		Cases per 100 Susceptibles	
	Unirrad.	Irrad.	Unirrad.	Irrad.	Unirrad.	Irrad.	Unirrad.	Irrad.	Unirrad.	Irrad.
Kg.	33	31	25	25	13	13	75.8	80.6	52.0	52.0
1	29	57†	20	39	13	27	69.0	68.4	65.0	69.2
2	61†	32	34	19	15	12	55.7	59.4	44.1	63.2
3	31	61	10	26	2	9	32.3	42.6	20.0	34.6
4	39	37	3	5	1	2	7.7	13.5	33.3	40.0
5	33	34	4	7	..	..	12.1	20.6	....	....
6	33	35	9	8	1	..	27.3	22.9	11.1	....
7	55†	31	12	5	1	..	21.8	16.1	8.3	....
8	45†	25	11	5	..	..	24.4	20.0	....	....
Total	359‡	343**	128	139	46	63	35.7	40.5	35.9	45.3

* As of start of epidemic in the specific grade for those grades in which cases occurred. Enrollment during the epidemic interval in the school for those grades in which no cases occurred.

† Combined classes.

‡ Excludes 8 pupils whose past history with regard to chickenpox is unknown.

** Excludes 10 pupils whose past history with regard to chickenpox is unknown.

TABLE 5

CHICKENPOX

Mexico School — 1945–1946

*Susceptibility and Attack Rates, Kindergarten Through Sixth Grade **

Grade †	Enrollment	Susceptibles	Cases	Susceptibles per 100 Enrolled	Cases per 100 Susceptibles
Kg.	53	29	19	54.7	65.5
1	87	50	25	57.5	50.0
2	72	27	9	37.5	33.3
3	72	20	4	27.8	20.0
4	68	15	4	22.1	26.7
5	61	18	3	29.5	16.7
6	74	13	3	17.6	23.1
Ungraded	14	10	2	71.4	20.0
Total	501‡	182	69	36.3	37.9

* Susceptibility histories with regard to chickenpox unsatisfactory above the sixth grade. Three cases occurred in grade 7, one in grade 8 and two above grade 8.

† Combined classes.

‡ Excludes 47 pupils whose past history with regard to chickenpox is unknown.

TABLE 6

CHICKENPOX

Mexico School — 1947–1948

Susceptibility and Attack Rates, Kindergarten Through Eighth Grade †

Grade *	*Enrollment*	*Susceptibles*	*Cases*	*Susceptibles per 100 Enrolled*	*Cases per 100 Susceptibles*
Kg.	91	50	28	54.9	56.0
1	68	36	26	52.9	72.2
2	69	17	6	24.6	35.3
3	69	16	3	23.2	18.8
4	67	21		31.3	....
5	75	21	3	28.0	14.3
6	75	11	1	14.7	9.1
Total—Kg.–6	514‡	172	67	33.5	39.0
7	63	21	2	33.3	9.5
8	70	7	1	10 0	14.3
Total—Kg.–8	647**	200	70	30.9	35.0

* Combined classes.

† Four cases occurred above the eighth grade.

‡ Excludes 36 pupils whose past history with regard to chickenpox is unknown.

** Excludes 44 pupils whose past history with regard to chickenpox is unknown.

per cent for irradiated individuals. Likewise, no practical differences occurred in the proportions of susceptible pupils attacked in the two groups. Thirty-six per cent of 128 unirradiated susceptibles contracted chickenpox as compared to 45 per cent of 139 in irradiated classrooms.

The first epidemic in Mexico occurred in 1945–1946, and the second one two years later in 1947–1948. The earlier episode resulted in 75 cases in a total enrollment of 938, with 69 of them among 548 pupils in the first 6 grades. Detailed analyses were not attempted beyond the 6th grade at this time because the susceptibility histories in the higher grades were deemed unreliable. The detailed findings are presented in Table 5. Table 6 summarizes the later episode in which 74 cases occurred in a total enrollment of 926, with 67 among

TABLE 7

CHICKENPOX

Cato-Meridian School — 1946–1947

Susceptibility and Attack Rates, Kindergarten Through Eighth Grade †

Grade *	*Enrollment*	*Susceptibles*	*Cases*	*Susceptibles per 100 Enrolled*	*Cases per 100 Susceptibles*
Kg.	53	33	12	62.3	36.4
1	62	35	19	56.5	54.3
2	50	20	7	40.0	35.0
3	58	19	3	32.8	15.8
4	72	32	3	44.4	9.4
5	57	14	4	24.6	28.6
6	59	18	4	30.5	22.2
7	51	8	..	15.7	....
8	41	11	2	26.8	18.2
Total—Kg.–8	503**	190	54	37.8	28.4

* Combined classes.

† No cases occurred above eighth grade.

** Excludes 26 pupils whose history with regard to chickenpox is unknown.

550 pupils in the first 6 grades, or 70 among 691 in the first 8 grades.

The total susceptibility rates of 36 per cent and 34 per cent respectively in these two epidemics are remarkably alike, and when they are considered in relation to the rate of 36 per cent in unirradiated pupils in Port Byron (Table 4), the comparability is striking. Similarly, the attack rates in the two outbreaks in the wholly unirradiated Mexico School, 38 and 39 per cent respectively, are very close to the rate for the control group in Port Byron.

The epidemic in the Cato-Meridian School occurred in 1946–1947 and consisted of 54 cases in a student body of 709, with all of them among 529 pupils in the first 8 grades. The data are shown in detail in Table 7. Here again the susceptibility rate of 38 per cent is almost identical with the rate of 41 per cent observed in the irradiated group in Port Byron (Table 4). The attack rates, by contrast, are appreciably different, 28 per cent in Cato-Meridian and 45 per cent in Port Byron. This difference reaches the 3 sigma level of significance, but the possible importance of significantly different rates in these two irradiated groups diminishes when it is noted that neither of these rates is significantly different from those in any of the three epidemics in the unirradiated control group.

Table 8 shows the results obtained when the data are analyzed with regard to the bus-riding status of the pupils involved. The attack rates at Port Byron for susceptible bus riders according to whether they were in unirradiated or irradiated classrooms were 39 per cent for unirradiated riders and 47 per cent for those irradiated. Attack rates for non-riders are 27 per cent in the unirradiated and 35 per cent in the irradiated group, non-riders lower in both instances, but these differences are *not* significant.

In the two outbreaks in the unirradiated school at Mexico, also shown in Table 8, 41 per cent of riders as compared to 30 per cent of non-riders were attacked in 1945–1946, and 37 per cent of riders and 43 per cent of non-riders in 1947–1948. Again the differences are not significant.

There is no evidence here that the school buses facilitate the spread of the chickenpox virus through the school population. The figures conflict with those obtained during the measles epidemic when irradiated non-riders had a significantly lower rate. It is difficult to explain the discrepancy by attributing it to possible differences in the behavior of the chickenpox and measles viruses in the various situations tested. The reason, then, for the time being at least, must be said to remain obscure.

TABLE 8

CHICKENPOX

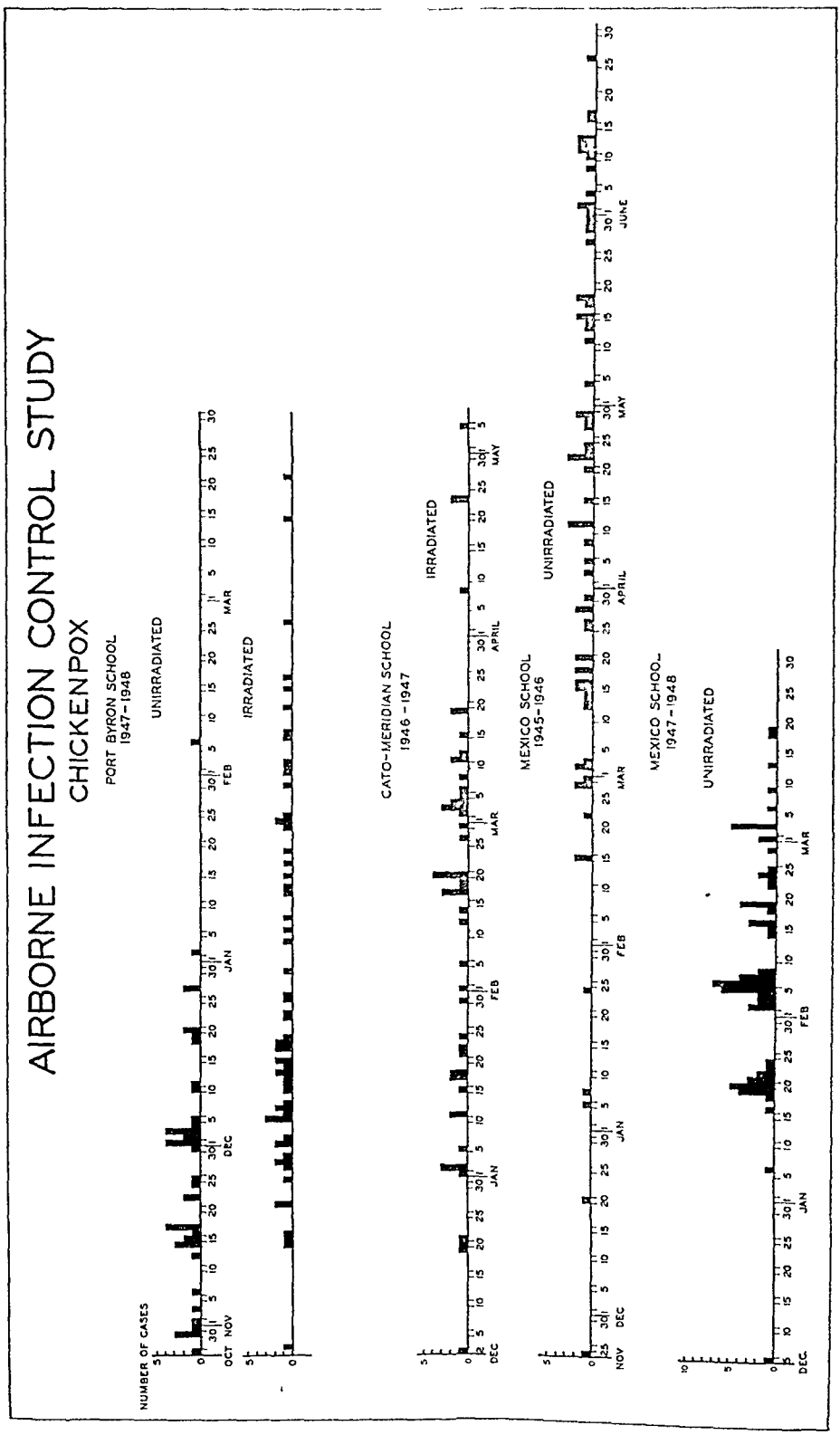
Port Byron and Mexico Schools

*Attack Rates Among Susceptible Bus Riders and Non-riders**

	Port Byron, 1947–1948		*Mexico.*	
Riders and Non-Riders	*Unirradiated*	*Irradiated*	*1945–1946*	*1947–1948*
Susceptible bus riders	95	116	126	121
Susceptible non-riders	33	23	56	51
Cases in bus riders	37	55	52	45
Cases in non-riders	9	8	17	22
Cases per 100 susceptibles:				
in bus riders	38.0	47.4	41.3	37.2
in non-riders	27.3	34.8	30.4	43.1

* Kindergarten through eighth grade for Port Byron.
Kindergarten through sixth grade for Mexico.

CHART 2


AIRBORNE INFECTION CONTROL STUDY
CHICKENPOX
PORT BYRON SCHOOL
1947-1948
UNIRRADIATED
IRRADIATED
NUMBER OF CASES
CATO-MERIDIAN SCHOOL
1946-1947
IRRADIATED
MEXICO SCHOOL
1945-1946
UNIRRADIATED
MEXICO SCHOOL
1947-1948
UNIRRADIATED

CHRONOLOGICAL PATTERNS

During the measles epidemic previously described, interesting differences in the chronological distribution of the cases in the specific outbreaks in the individual schools were noted, a low-grade, protracted type of spread occurring in the irradiated environments, and appreciably more explosive episodes in the unirradiated control areas.

With these differences in mind, the several epidemics that have been discussed were examined for similar manifestations. The picture for mumps in Port Byron offers no evidence that the epidemic was more explosive in the unirradiated than in the irradiated group. This can be defined arithmetically, as it was for the measles epidemic, in terms of the range in days of the onsets of the middle 80 per cent of cases. Among unirradiated pupils with mumps in the kindergarten and first 8 grades, this was 53 days. For irradiated pupils, all in corresponding grades, it was 54 days.

In Cato-Meridian, again, lack of explosiveness is evident, and the range in days for the middle 80 per cent of cases is 64, only 10 days longer than in Port Byron.

With chickenpox, the story is somewhat different. In Chart 2, from the chickenpox epidemic in Port Byron, again a low-grade endemic type of spread is evident among irradiated pupils. Among the unirradiated by contrast, there is a definite suggestion of accumulation of infection, in clean-cut waves demarcated roughly by the incubation period of the disease. Moreover, the middle 80 per cent of cases in the unirradiated group occurred in 49 days, whereas in the irradiated group, the span is 78 days.

In wholly irradiated Cato-Meridian, the picture is essentially that of the irradiated group in Port Byron. And the time range of the middle 80 per cent of the epidemic was 76 days, almost identical with the 78 observed in Port Byron.

Here, then, is a tangible difference in pattern which could be related to the nature of the environment, and perhaps specifically to the presence or absence of ultra-violet radiation. Some possible doubt of this assumption is suggested by the fact that the picture of the recent epidemic in the unirradiated Mexico School in 1947–1948 is a reproduction of that obtained in the unirradiated classrooms in Port Byron, but the epidemic at Mexico in 1945–1946 is just as good a duplication of the patterns from the irradiated groups in Port Byron and Cato-Meridian. In terms of time spanned by the middle 80 per cent of the cases, the contrast is just as striking, since in the more recent epidemic this comes to only 44 days, and in the earlier episode, it was 108 days.

Another difference in these two epidemics was the year of their occurrence, of course, but it hardly seems that any seasonal factor could have been operating, since the first case occurred on November 24 in the earlier episode and on December 5 in the later; and both outbreaks were well underway in the cold months. It will be recalled that the enrollments were essentially the same in the two years also, and that the susceptibility and attack rates were extraordinarily similar. The reason underlying

TABLE 9

MUMPS AND CHICKENPOX

Port Byron, Cato-Meridian and Mexico Schools

Range in Days of Middle Eighty Per cent of Cases

Mumps:		
Unirradiated	Port Byron	
	Whole School	71 days
	Lower School	53 days
Irradiated	Port Byron	
	Lower School	54 days
	Cato-Meridian	
	Whole School	64 days
Chickenpox:		
Unirradiated	Port Byron	49 days
	Mexico, 1945–1946	108 days
	Mexico, 1947–1948	44 days
Irradiated	Port Byron	78 days
	Cato-Meridian	76 days

this interesting observation, therefore, is not clear.

Table 9 shows a summary of the range in days of the middle 80 per cent of cases in all of the epidemics that have been discussed.

CONCLUSIONS

These analyses of epidemics of mumps in two of the centralized schools under study offer no incontrovertible evidence that ultra-violet lamps in the classrooms modified the spread of the disease in those classrooms. This finding may indicate that ultra-violet irradiation is ineffective in controlling the spread of mumps, or it may mean merely, as some authorities believe, that mumps is not an air-borne infection.

On the other hand, the differences in the rate of spread of chickenpox, with low-grade protracted epidemics in irradiated individuals and more explosive episodes in unirradiated controls, may be due to the presence of the ultra-violet radiation. A similar interpretation was suggested in the prior report dealing with measles. The observation of the two extremes for no demonstrable reason in the wholly unirradiated control environment does not invalidate the above premise, but it does emphasize the fact that an endemic type of spread may be due to other inapparent causes. And, above all things, it points to the extreme variability of disease patterns and the need for study of several epidemics of each disease in each environment before any definite conclusions are justified.

One consistent finding in all of the outbreaks observed thus far merits emphasis: the shorter, sharper type of outbreak has never been encountered in an irradiated environment. This may be an effect of the ultra-violet radiation in the atmosphere.

The findings presented suggest that failure to observe protection against mumps and chickenpox among pupils in unirradiated classrooms as compared to those in irradiated rooms cannot be explained on the basis of exposure within the buses. It is possible that the significance of the buses may be better evaluated, however, when further data have been compiled with the air in them under treatment with bactericidal vapors. The Port Byron buses are now equipped with vaporizers which dispense triethylene glycol whenever the bus is in operation.

Also, as of the current year, observations in another school in the same area have been started. The entire school building and the buses are equipped with triethylene glycol vaporizers instead of ultra-violet lamps, but the same methods of study are being used as have been used throughout in the ultra-violet experiment.

While the main purpose of the experiment as presently conducted has been to test the possibility of controlling the spread of measles, mumps, and chickenpox in rural centralized schools by ultra-violet irradiation of classrooms, the opportunity for obtaining data on absence due to nonspecific respiratory diseases has not been overlooked. It is hoped to report these data at some time in the future.

In closing, the authors would like to remind their readers that this study has not been conducted with the idea that it is desirable to prevent the spread of measles, mumps, or chickenpox in school children. These diseases were selected merely as good workable criteria to test the effectiveness of ultra-violet irradiation of classrooms in controlling the spread of air-borne infection in centralized rural schools.

ACKNOWLEDGMENTS — The continued excellent coöperation of the entire school personnel of all three schools and the assistance and substantial support of Dr. L. J. Buttolph and the General Electric Company are gratefully acknowledged.

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Classifying Health Agency Positions

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THE daily activities of a health department relate to many and varied functions. Most of these are program activities — communicable disease control, maternal and child health, nursing functions, laboratory work, and so on. Some activities are administrative — business management, fiscal operations, personnel administration, and such. Even within the several administrative areas, certain further divisions can be made. Thus, one sector of personnel administration is position classification, a subject of increasing interest to officials in public health.

Position classification, in its simplest terms, consists of the orderly arrangement by duties and responsibilities of the position of an agency. This arrangement of positions is called the classification plan, a plan that can be put to many administrative uses and can be of considerable value to the health officer. For example, the pay plan, or the proper salary level of all classes of positions, can be determined by referring to the duties and responsibilities of each class of position. Employee selection can be simplified by the plan, for a given set of duties and responsibilities carries with it a statement of the minimum requirements of training and experience required for the successful completion of those duties. The classification plan reveals the ladders of promotion from one position to the other merely by scanning the hierarchy of duties in the plan. Programs of employee training and orientation may be based on the responsibilities of positions in the plan, and directed toward the development of the skills demanded by those responsibilities. Likewise, the employee service rating or efficiency rating program becomes considerably clarified by keeping in mind the requirements of the position in which the employee is being rated. The classification plan has been found to be of help in simplifying the budget process, by supplying the administrator with a common title for common positions. Further, an organizational use has grown out of position classification, the process of placing duties and responsibilities having been found to reveal weakness or faults in the organizational structure.

The classification survey, although involving technical detail, is not solely a matter of technique, for a certain amount of basic administrative planning must also be undertaken. Among these is the decision as to who shall conduct the survey—staff members of the health agency, a private firm of management consultants, or perhaps occasional consultation from some recognized person in the field. Administrative implications of the effect of a survey on staff members, the amount of time the survey will consume, how many positions can be classified in a given period, and similar questions call for planning. Questions of policy will arise with respect to the action to be taken when employees are found to be working in titles different from those for which they were hired, or that to be taken with respect to salary changes, as well as policy with respect to the fiscal implications of classification.

Before undertaking a survey, no mat-

ter by whom performed, it is essential that every member of the staff understand the purpose and procedures of position classification. Since position classification seems essentially a simple process, it may bring with it a feeling on the part of the administrator that he could do the whole job himself if he had a little time, or perhaps a feeling of astonishment that classification should take as long as it does. Staff members may resent the activity or fear it. Misapprehensions with respect to classification are many, and all too often the end product of a classification survey is a period of turmoil in the agency or a flat rejection of the entire plan. It is strongly recommended that a classification study be delayed, or even not initiated, until the staff perceives the need for position classification and the uses of the classification plan.

A valuable means of assuring understanding is the formation of a committee to recommend policy, to administer and coördinate the survey, to concern itself with the technical aspects of job analysis, and to hear appeals. Other methods will suggest themselves to the administrator, but no matter what the technique for insuring participation, it is strongly recommended also that no classification project be undertaken until a reasonable degree of acceptance on the part of employee and supervisor has been achieved.

The basic process of classifying positions, like that of classifying anything else, calls for the data to be classified, a set of standards regarding the classes into which to place the data, and judgment in deciding which datum goes in which class. This is true whether one classifies the several kinds of pneumococci or personality types or positions. The material of position classification has been stated to be based on the duties and responsibilities of each of the positions to be studied. There are two standard ways of gathering this material: by questionnaire and by interview. In the questionnaire method, the employee holding the position being surveyed lists his duties and the responsibilities which he carries out in his work. He may do this by entering a notation of his functions as he recalls them at the end of the day or, preferably, he may record his activities at regular intervals throughout the day. An ideal means of obtaining a stable picture of work distribution is to have the employee keep a diary of his work over a period of a week, say, and summarize it for the questionnaire. In the interview, also known as a "desk audit" in the classification jargon, information is developed by speaking with the employee and having him identify his duties. As the employee enumerates his duties, he can be questioned with respect to known classification standards. As a result of this question and answer period, which can run from about 10 to 30 minutes on the average, one becomes aware of what each employee does, the extent to which he does it, and the organizational level at which the work is performed.

The advantage of using questionnaires in gathering job information is that of speed. Further, large numbers of employees can complete the questionnaire on the same day, yielding a picture of the distribution of duties and responsibilities as of a given time. If this method is used, care must be taken to insure that employees list job information in a manner that can be most useful. Instruction sheets should accompany the questionnaire, and it is most desirable to have a training period precede the survey.

The interview method has several advantages, not the least of which is that the interviewer can be more assured of the information which he is collecting. He can continue asking key questions until every phase of the position is known to him. Further, idiosyncrasies of agency language—the use of office terms,

form numbers, professional vocabulary, and the like—can be clarified immediately. Probably the greatest disadvantage of the method is the amount of time consumed in conducting interviews.

The use of the questionnaire, supplemented by interviews in instances in which the completed questionnaire is not clear or in which further information is needed, has been found to be a successful means of developing needed data.

Regardless of which method is followed, the position should be described in simple, objective terms. To the question "What are your duties?" a clear, unambiguous reply is desired. The answer "I assist the director" or "I have responsibility for dental care" is poor. What the employee *does* when he assists, or what specific *acts* make up the responsibility will determine the level of classification. Without this basic information the classification process cannot proceed.

Words which often are used and which are signals that the job description could be improved are "handle," "review," "pass upon," "assist," "examine," "prepare," and the like. When these are read or heard, it is well to stop for supplementary information. To cite an example from a function common to all health specialties, an employee may state that one of his duties is "to obtain from bureau directors a statement of their budget estimates and justifications," which tells us something of the job. A second employee then may state "I assist in obtaining from bureau directors a statement of their budget estimates and justifications," which tells us little. What is the nature of this assistance? Does it consist of taking over the budget meetings on certain days of the week or ordering pencil and paper or arranging the chairs prior to the meetings or just what? On further inquiry we may learn that what the second employee does is to compile and integrate budget requests prior to his supervisor's meeting with bureau directors, and we are then in a better position to evaluate the job.

After the data are collected, another major portion of the process of classification begins. The duties statements are read to determine the content and requirements of the position and the occupational area in which they will fall. Positions are then grouped by the profession, skill, or activity, by which they are generally recognized. That is, as medical, dental, nursing, engineering, laboratory, clerical, stenographic, custodial positions, and so on. Some of these groupings are easily arrived at, such as the position whose duties require the full-time operation of a typewriter or office machine. Others are more difficult to determine because the duties may straddle two or more occupational groups. When the positions have been grouped in this manner, they are then further examined to find the level in which they fall. This is achieved by grading the positions on the basis of the extent to which the duties and responsibilities become increasingly heavy.

The question, Why is one position considered to be at a higher level than another? seems to be one of interest to health officers. The factors that determine the level of a position are such basic ones as the training and experience needed, the decisions to be made, the variety of work, the extent to which the employee's authority is final, the establishment or interpretation of policy or procedure, the extent to which the work requires that the employee meet the public, the nature of the supervision which the employee receives, the type of supervision of others which the work entails, review of the work of others, and so on. Each of these factors is in turn composed of many degrees. Review of the work of others, for example, includes the purpose of the review, the authority to make changes, the scope of

the review. Going down to a still smaller unit, the purpose of the review can be for the propriety of the conclusions reached, for accuracy of the work, for the completeness of the work, for verification, or for coördination.

One of the end-products of a classification survey should be a set of class specifications describing the several classes of positions in the agency. The class specification includes a class title, an overall statement of the duties of the class, examples of the duties of the class, and the minimum requirements of education, experience, knowledge, and ability deemed necessary for the successful performance of the duties of the class. Thus, the title could be "Director, Division of Industrial Hygiene," the general statement of duties, "Under general direction, to administer a program for the control and prevention of occupational diseases and health hazards in industrial concerns," the example of duties, "Direct surveys of health hazards in industrial plans including the quantitative atmospheric determinations of dusts, gases, volatile solvents, toxic metals, and related hazards," and so on in a complete description of the duties of this director. The minimum qualifications would be the least amount of training and experience deemed necessary for successful performance of the duties.

As a tool, there is no doubt that position classification can be of great value to the health officer. Given a working knowledge of position classification, the administrator should immediately find that certain personnel problems are reduced, that problems of organization become clarified, and that certain simplifications in budgeting become possible. The procedure is not a panacea, but it does have its uses. Health agencies not having a plan of position classification could well consider establishing one. Health agencies which do have a classification plan could well examine the plan to determine if it is of most use to them.

The Health Officer and the Medical Profession*

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NO health department can operate successfully unless it has the full confidence and support of the physicians practising in the area it serves. No health officer can long continue in his position against the opposition of a few influential members of the medical profession. No new program can successfully be launched without the consent and approval of the medical profession. These facts are of course axiomatic to all experienced health officers, but it is perhaps well to restate them and to call attention to certain fundamental principles which underlie the successful establishment and maintenance of proper relationships between physicians and the health department.

In this work a first and absolutely indispensable condition is that the health officer be, in fact and in feeling, a member of the medical profession of the area. He should be fully qualified to practise medicine and a member in good standing of the local, state, and national medical organizations. His membership should be something more than nominal. He should be a regular attendant at the meetings of his local society and should attend the state and national meetings as often as opportunity permits. When appointed to a committee of a medical organization he should use every effort to make its work a success. Not many members of local medical societies are willing to expend any great amount of energy in its work, and those who are willing to serve may thus exert a deciding influence on both the opinion and the action of the profession. In Maryland it has long been the custom for the county medical society to elect the health officer as its secretary. The fact that he has a fully organized office and is accessible at all times makes this a logical and convenient arrangement. On the other hand, the health officer who serves as secretary of his county medical society has opportunity to participate in the formulation of its plans and policies while they are still in their beginnings, and before the opinions of the members have had opportunity to crystallize. Policies and procedures always go through a period of fluidity during which it is possible to correct mistakes and to fill omissions without the generation of any emotional reaction. Once they have taken shape, however, those responsible for their formulation have an instinctive desire to protect their handiwork, and even small changes, the need for which seems to be obvious, can be made only with extreme difficulty. The health officer should always attempt to work from within the organization and should avoid, as if it were a plague, participation in any movement from without.

A second essential to success in dealing with the medical profession is to create in the minds of its members the

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belief that the health officer deals with them frankly, honestly, and in good faith. This impression can be fostered only by action, never by words. The health officer who is proud to be a doctor, who is jealous of the good name of his profession, who is honestly anxious to be of service to the practitioners of his area, will soon implant in their minds that feeling of confidence and affection which is a necessary prelude to effective joint action.

A third essential is that the health officer observe medical ethics in spirit and in letter. Our present code of medical ethics represents the accumulated experience of many centuries. The reasons for some of its provisions are not at once evident, but that they still remain part of the code is testimony to the fact that they have real survival value.

A fourth essential is the careful observance by the health officer of those simple but vastly important habits which we speak of as "good manners." Good manners are of two kinds—those personal instincts which lead us to treat those with whom we deal with courtesy and consideration, and those administrative habits which involve the same principles of courtesy and consideration in our official dealings with those with whom our work brings us into contact. Administrative good manners are far more rare than personal good manners, perhaps because many physicians have only limited experience in administrative relationships. They become increasingly necessary as the organizations with which we have to deal grow larger and more complicated. They are well worth the careful study of every health administrator.

The health officer in his dealings with the medical profession should always remember that the most priceless possession of any physician is the confidence of his patients. The physician carries a heavy responsibility to those he serves, and he cannot properly serve them unless they believe not only in his personal qualities but also in his professional knowledge and skill. A doctor cannot therefore let himself be put in the position of being ignorant of any fact he might be supposed to know. Any new activity of the health department should therefore be made known to every practising physician before it is communicated to the general public. Nothing is more embarrassing to a physician than to be asked a question about some public health procedure to which he does not know the answer. His instinctive reaction is of course to advise against the procedure or to postpone reply until he has had an opportunity to become familiar with the facts. Then, too, a physician asked to carry out some technique with which he has not had previous experience may be expected to question the value of the procedure which he cannot perform without embarrassing awkwardness. The health department should therefore never ask the members of the medical profession to do anything new without first giving them opportunity to learn the actual technique well enough to carry it out with credit. It should never advocate any procedure regarding which it has not previously informed the medical profession. No representative of the health department should under any circumstances, except those in which criminal action becomes necessary, criticise a physician or cast doubt on his professional attainments. The regulation of medical practice has fortunately not been committed in most states to the health department, and the health officer must assume that any licensed physician is qualified to practise medicine. Nothing can destroy the confidence of the medical profession in the health department or create so deep and permanent an antagonism as does the criticism of practising physicians. A thoughtless word or even a critical intonation will

almost certainly be reported at once to its object and will breed a resentment out of all proportion to its apparent importance.

If he wishes successfully to bring the medical profession of his area to a new point of view, the health officer should foresee as far in advance as possible the new programs which are to be developed, and should suggest to the profession as often as possible that these policies are some day going to be put into effect. It is hard to be antagonistic to something which we have repeatedly been told is inevitable. The tendency of the medical profession is, in general, to be conservative and to oppose change, and this tendency can best be combated by suggestions extending over an appreciable period of time.

The opinion and the official action of almost any group of physicians is strongly influenced by two quite different groups of members. There are in every medical society of any size a few men who are frankly "on the make," who judge every new proposal from the standpoint of its effect on their own personal incomes. These men are frequently intelligent and resourceful and are almost always highly vocal and exceedingly active. At the other extreme, we always find a few men of high character and real devotion who are not always either vocal or skilled in political maneuvers. In the long run, however, it is character which finally prevails, and it is with the men of character and devotion that the health officer must align himself.

Doctors are after all only fallible human beings. It would be easier and nicer if they were created of a fibre a little finer than that of the ordinary man and were always inspired by the ideals to which only the best of men can attain. That they succeed in meeting as well as they do the tremendous responsibilities they must assume is no small testimony to the influence of the ideals and aspirations of the profession. A health officer who is proud to be a member of the medical profession and determined to uphold its highest ideals, who genuinely tries to understand the complicated problems of practitioners of medicine and to be conscious of their difficulties, will seldom fail to exercise great influence on their thinking and their actions, both individual and collective. It is a phase of the work of the health officer which, done well, will tremendously forward the progress of his work, bring him priceless personal associations, and give him great pleasure. Neglected or conducted in any selfish, narrow, or ignoble spirit it will destroy his usefulness and leave him frustrated and unhappy. It is a subject to which every health officer should devote his best thought and his most skilled effort.

Bacterial Contamination of Tomatoes Grown in Polluted Soil*

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THE potentialities of the transmission of human bacterial diseases through consumption of raw vegetables grown in soil fertilized by nightsoil are of concern not only to peoples in foreign lands where such methods are widespread, but also here in the United States where irrigation of crops with polluted stream water is becoming increasingly common. Attempts to conserve various sewage sludges for fertilizer depend to a considerable extent on the health aspects of their use.

Examination of the published literature has revealed little direct evidence of extensive transmission of bacterial enteric diseases by consumption of raw nightsoil-fertilized vegetables. The role of polluted vegetables in areas where such diseases are endemic or epidemic is difficult to separate from the influences of polluted drinking water or insect vectors. When one is dealing with animal parasites, on the other hand, the greater resistance to the environment of cysts and eggs as compared with vegetative bacterial forms may appreciably alter the problem.

The purpose of the present investigation was to evaluate the bacterial contamination of vegetables grown in a polluting environment. The residual surface bacterial contamination of a vegetable grown in polluted soil, or artificially sprayed with a contaminant during growth, compared with that of crops grown on similar unpolluted soil, was considered indicative of the possible sanitary quality of such foods for raw consumption.

METHODS

Since literature surveys have shown the nonpathogenic coliform groups of bacteria to be more resistant to external conditions than are enteric human pathogens, use of these coliforms as indicator organisms was considered of value.

The tomato was selected for study, since it is one of the most common fruits eaten raw and grows relatively close to the ground where contamination might easily be picked up from polluted soils. Such contamination would be on the surface or in cracks and crevices in the skin; the literature on the subject has indicated little likelihood of internal contamination of healthy fruit.

Evaluation of bacterial contamination on the tomato surfaces was simple and direct. The whole fruit was macerated for one minute in a high speed Waring blendor. Coliform organisms were found to be unharmed by this treatment, nor was the resultant acid tomato juice detrimental to the organisms for at least one hour after maceration, a sufficient time for transfers and dilutions to culture media.

The culture media used were lactose broth followed by brilliant green bile broth.

To evaluate the factors that influence

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the residual surface contamination of tomatoes growing in a pollutional environment, two separate field experiments were carried out after extensive laboratory experiments had been conducted.

A small sewage irrigation farm of a southern New Jersey state institution was selected as the site of the first of these experiments. Three plots were established for the growth of tomatoes. One was irrigated throughout the growing season with settled sewage to the extent of good farming practice with respect to soil saturation. The second plot had been frequently flooded with sewage in the spring before the plants were set out, but not thereafter. The third had never received sewage contamination so far as could be determined. Certain of the plants in each plot were protected with a good covering of waterproof nontoxic paper from the splashing of soil by rain. Several plants were staked to evaluate the effect of height from the ground on the subsequent contamination. The remaining plants in each plot were allowed to develop normally.

The second field experiment was conducted at the New Jersey Agricultural Experiment Station. The growing tomatoes received sprays of feces and *Escherichia coli* suspension at approximately 2 week intervals. Spraying was stopped near the end of the growing season when sampling began. All plants developed normally without stakes or ground protection.

In both localities normal farming practices of cultivation, weeding, and fungus control were employed when necessary.

RESULTS

A. *Sewage Farm Experiments*

It was noted early in this work that tomatoes with normal uncracked stem ends gave lower bacteriological counts than did tomatoes with split or cracked stem ends with crevices which could harbor dirt and bacteria. Table 1, in which the results of the sewage farm experiments are summarized, bears out this point. The normal tomatoes on the plot receiving continual sewage irrigation show about one-tenth the coliform count of abnormal tomatoes. On the plots that received previous or no sewage contamination, this ratio was about one-fourth.

Of primary interest is the almost insignificant differences in the mean contamination of normal tomatoes whether grown on soils receiving sewage irrigation, soil with previous contamination, or soil with no contamination. Abnormal tomatoes growing on soil continuously polluted showed about three times the contamination of those grown under the two other soil conditions.

There were no marked trends to indicate variation of tomato contamination with the height of the fruit above the ground. Tomatoes in actual contact with the ground showed a tendency toward higher average coliform counts, but this was not always consistent. When

TABLE 1

Coliform Contamination of Tomatoes from a Sewage Farm

Soil Contamination	*Tomatoes Tested*	*Coliforms/gm. of Tomato*	
		Median	*Range*
	Normal Tomatoes		
Concurrent	39	9	1–50,000
Previous	42	8	1–36,000
None	30	10	1–42,000
	Abnormal Tomatoes		
Concurrent	33	120	1–36,000
Previous	25	40	1–46,000
None	27	44	1–42,000

TABLE 2

Effect of Sun Exposure on Coliform Contamination of Tomatoes on a Sewage Farm

Shading	Tomatoes Tested	Coliforms/gm. of Tomato	
		Median	Range
	Normal Stem Ends		
Shaded	29	27	1– 5,800
Semi-exposed	28	25	1–45,000
Exposed	54	6	1–36,000
	Abnormal Stem Ends		
Shaded	31	120	1–40,000
Semi-exposed	30	42	1–42,000
Exposed	24	90	1–46,000

certain fruit were protected from the soil by spreading a nontoxic waterproof paper between the plant and the ground, no indications of lower contamination of the tomatoes were found.

The cited facts indicate that other processes whereby contaminating soil particles may reach the plant are at least as important in the contamination process as direct splashing of soil on fruit during rainstorms. The soil raised during cultivation or by the wind and the movement of insects from the ground to the plants are among these other processes.

The direct exposure of the edible portion of a plant to sunlight during growth may have a deleterious effect on the surface contaminants. The data from the sewage farm experiments were examined to evaluate the relationship of the exposure of the tomatoes to the sun and their residual coliform contamination when harvested. Because of protection under leaves, shaded tomatoes received no direct sunlight at any time. Semi-exposed tomatoes received direct sunlight for varying periods during the day. Exposed fruit received almost continuous direct sunlight in fair weather.

The information from all three plots of the sewage farm are summarized with respect to solar exposure in Table 2. Only in normal tomatoes does complete exposure result in average lower numbers of coliform organisms. As for the abnormal tomatoes, the cracks and crevices apparently protected larger numbers of organisms from the sun.

B. *Agricultural Experiment Station Study*

The field experiments at the New Jersey Agricultural Experiment Station were designed to compare the magnitude of the residual coliform contamination on tomatoes receiving sprays, during growth of feces or *E. coli* suspensions with that on tomatoes not sprayed. The fruit was sprayed at approximately 2 week intervals for 2 months. The spraying was done by means of ordinary household insect sprayers. The feces

TABLE 3

Residual Coliform Contamination on Sprayed Normal Tomatoes

Contaminant	Days After Spraying	Tomatoes Tested	Coliforms/gm. of Tomato	
			Median	Range
Feces	11	19	800	1–64,000
	35	8	1	1–2—
	42	7	1	1
E. coli	11	4	2,000	1– 4,000
	35	9	3	1– 800
	42	7	4	1– 70
Control	11–42	13	5	1– 1,200

TABLE 4

Residual Coliform Contamination on Sprayed Abnormal Tomatoes

Contaminant	Days After Spraying	Tomatoes Tested	Coliforms/gm. of Tomato	
			Median	Range
Feces	11	4	2,400	380–41,000
	35	6	5	1– 70
	42	5	1	1– 27
E. coli	11	6	13,000	7–33,000
	35	4	200	1–33,000
	42	5	1	1– 1,100
Control	11–42	12	250	1–48,000

suspension was made up by macerating fresh feces with water in a Waring blendor and centrifuging to remove heavier solids. The *E. coli* suspension was made from 24 to 48 hour cultures on nutrient agar. The sampling period began about 10 days after the spraying ceased and continued for more than a month.

The residual coliform contamination of the tomatoes with normal stem ends is shown in Table 3. Eleven days after spraying was stopped, the median value of the number of coliform organisms per gram of tomato was still comparatively high, 800 and 2,000 for the feces and *E. coli* contaminated tomatoes respectively. However, by the 35th day, contamination was approximately that of the controls.

On tomatoes with abnormal stem ends (Table 4) similar results were obtained. Although the control tomatoes showed higher naturally occurring coliform concentrations than did the tomatoes with normal stem ends, the sprayed fruit showed counts equal to or below the controls by the 35th day after cessation of spraying.

For both types of control tomatoes, with normal and abnormal stem ends, there was no tendency toward the decreasing coliform counts found on the sprayed fruit.

It was concluded from these data that the coliform organisms of fecal origin had almost completely disappeared after a month from the surfaces of the tomatoes growing in the field. Enteric pathogenic bacteria in such fecal material might also be expected to show similar large reductions in number.

To test the possible survival of pathogenic enteric bacteria under similar field conditions, certain of the tomatoes were heavily sprayed with suspensions of *Salmonella cerro*. Suspensions of this organism with fecal material were also employed. Recovery of the Salmonella was made by plating macerated tomatoes on desoxycholate citrate lactose sucrose agar (D.C.L.S.), testing typical colonies in Kligler's iron agar, and agglutination with O—XVIII antiserum.

Of 31 tomatoes examined over a period of 27 days after spraying, only one showed the presence of *S. cerro*. This was found after 3 days, the first test period after spraying. Thereafter the organism was never recovered.

CONCLUSIONS

On the basis of these field experiments certain conclusions can be drawn on the bacterial contamination of tomatoes grown in polluted soil.

1. The residual coliform contamination on the surface of tomatoes with normal uncracked stem ends grown on polluted soil was no greater than that on tomatoes from unpolluted soils. Whether the pollution was added to the soil prior to or concurrent with the growth of the plants made little difference.

2. When the stem ends of the tomatoes were abnormally split, the coliform contamination was higher regardless of the soil. This pollution was three times higher when the soil received sewage irrigation during growth than

where the pollution had occurred prior to planting or not at all. It should be pointed out that these split stem ends would normally be removed from the tomato before consumption raw.

3. Sunlight appeared to have some deleterious effect on the contaminants of exposed tomatoes, but the protection of cracks and crevices on tomatoes with abnormal stem ends reduced this effect considerably.

4. The absence of any clear-cut tendency for lower contamination of the higher growing fruit as well as the inability of waterproof paper spread on the ground to decrease contamination indicated that direct splashing of the soil on the plant during rainstorms was not the chief controlling factor responsible for carrying bacteria from the soil to the tomato surfaces. Other factors such as wind-driven dust, dirt raised during cultivation, and movements of insects may be of equal if not greater importance in this respect.

5. When tomatoes were sprayed, during growth with suspensions of feces or *Escherichia coli* it was found that within a month the surface coliform contamination had been reduced to or below that of the unsprayed controls.

6. When *Salmonella cerro* suspensions were sprayed on tomatoes in the field, the organism could not be recovered after 7 days. This indicated a comparatively rapid death rate under these conditions compared with the fecal coliform organisms.

SUMMARY

The results obtained on the concentration of coliform bacteria on the surfaces of tomatoes grown in polluted soil indicated no abnormal gross contamination. Even when crops were sprayed with fecal suspensions, surface coliform counts were no greater after one month than on control tomatoes. The failure to find *Salmonella cerro* 7 days after its application to growing tomatoes upholds the contention that organisms of fecal origin will not be present in sufficient numbers to cause gross contamination.

On the basis of these results it is felt that the growth of tomatoes on soil that had received nightsoil or sewage sludge fertilization would yield crops which, if eaten raw, would not be likely vectors for the transmission of human bacterial enteric diseases.

ACKNOWLEDGMENT: The work in this paper is part of a study made for the Quartermaster Corps.

Take a Test

The Merit System Service booth at the American Public Health Association annual meeting in Boston attracted considerable attention with its "TAKE A TEST" exhibit. This consisted of six short sample tests, designed to illustrate the type of service being offered by the Merit System Service and to show how public health information, experience, and judgment can be measured by objective examinations.

The exhibit was repeated at the Western Branch meeting of the American Public Health Association in Los Angeles, Calif., May 30 to June 1.

The results for the Boston meeting are available in an attractively bound report which contains copies of the six sample tests, an answer key, an analysis of the scores of the persons tested, and an analysis of the items themselves. The latter illustrates the method which is used to evaluate the effectiveness of individual questions. The report may be obtained by writing to the Merit System Service, American Public Health Association, 1790 Broadway, New York 19, N. Y. $1.00.

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COMMISSION ON CHRONIC ILLNESS

THE field of geriatrics, and the related field of chronic diseases at all ages, are receiving more and more serious attention from the public health profession of this continent. The symposium on present-day goals for 1950 (with which this issue of the JOURNAL opens) shows that the broad aspects of this group of problems are given top priority in planning by California and New York, second place in Connecticut, and Massachusetts and Mississippi, third place in Michigan, Montana, Oklahoma and Wisconsin. Diabetes in particular holds third place in Florida, cancer holds third place in Mississippi, and rheumatic fever second place in Oregon and third place in California.

In connection with such problems, health workers everywhere will greet with enthusiasm the recent establishment of the Commission on Chronic Illness.[1] The successes achieved in the conquest of many of the acute infections has made it possible to move forward now in a concerted attack on what is in essence the nation's major health problem.

The chronic diseases lead the list of causes of death in the United States, are responsible for at least 60 per cent of all disability, and affect practically every family. A conservative estimate places the number of persons who have a chronic disease, with or without disability, at about 25 million. Recent experience with mass surveys for tuberculosis and diabetes, as well as the findings of cancer detection clinics, indicate that the actual prevalence of chronic diseases is considerably greater than this estimate indicates.

The Commission on Chronic Illness is particularly noteworthy because it includes in its membership a broad representation of the American public as well as the major professional associations concerned with the problem. An important factor in the successful launching of the national commission has been the close coöperation of the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association.

The joint statement on "Planning for the Chronically Ill"[2] which was adopted by the four professional associations in October, 1947, represents a considered

analysis of the various aspects of the problem and an excellent starting point for the work of the commission. This statement recognizes that the care of the chronically ill is inseparable from general medical care; and that, while it presents certain special aspects, it cannot be isolated from general health and medical services without running serious dangers of deterioration of quality of care.

One of the most significant features of the joint statement is its insistence on the need for a preventive approach, if substantial decline in the incidence and severity of chronic disease is to be achieved. Emphasis is correctly placed on the importance of early diagnosis and treatment as a preventive measure in chronic illness, capable of preventing complications, disability, and death in many instances. The statement underscores the great potentialities of rehabilitation in chronic illness and calls for wide expansion of rehabilitation services and programs.

It is significant in these connections that the Commission on Chronic Illness has adopted as its first objective: "To modify the attitude of society that chronic illness is hopeless; to substitute for the prevailing over-concentration on the provision of institutional care, a dynamic program designed as far as possible to prevent chronic illness, to minimize its disabling effects, and to restore its victims to a socially useful and economically productive place in the community."

The progress, in this field, of California and New York and the other states mentioned above, will be watched by all of us with absorbing interest.

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PRESENT STATUS OF BCG

THE practical possibilities of the use of BCG were discussed in these columns two-and-a-half years ago.[1] The World Health Organization has wisely made immunization with BCG a basic cornerstone of its program for the eradication of tuberculosis in countries where this is the only practical approach to the problem.[2] We, in the United States, where other modes of combating tuberculosis are effectively applied, have—also wisely—been relatively slow in pushing the procedure.

We have been waiting for an authoritative pronouncement with regard to the exact area of public health practice in which BCG could be used effectively under the conditions which obtain in this country.

Such a pronouncement is now at hand in a statement presented to the American Trudeau Society by Dr. E. P. K. Fenger and adopted (with certain revisions) by the Council of the Society on May 1, 1949.

Its major recommendations, quoted in full below, will be of vital interest to our readers.

I. BCG vaccine prepared under acceptable conditions, and administered by approved technics to persons negative to tuberculin, can be considered harmless.

II. The degree of protection recorded following vaccination is by no means complete, nor is the duration of induced relative immunity permanent or predictable. The need for further basic research on the problem of artificial immunization against tuberculosis is recognized and is to be emphasized. Studies should be directed toward:
   (a) Improvement of the immunizing agent;
   (b) Development of criteria for vaccination and revaccination;
   (c) More accurate determination of which groups in the general population should be vaccinated. Several well controlled studies are underway at the present time;

(d) Promotion of carefully controlled investigative programs, which, as a rule, will be carried out best under the auspices of official agencies such as the U. S. Public Health Service, state and municipal health departments and other especially qualified groups;
(e) Devising of adequate record systems for management of statistical problems involved in recording and following large numbers of vaccinated people.

III. On the basis of studies reported in the literature, an appreciable reduction in the incidence of clinical tuberculosis may be anticipated when certain groups of people who are likely to develop tuberculosis because of unusual exposure, inferior resistance, or both, are vaccinated.
(a) In the light of present knowledge, vaccination of the following more vulnerable groups is recommended, provided they do not react to adequate tuberculin tests:
1. Doctors, medical students and nurses who are exposed to tuberculosis;
2. All hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis;
3. Individuals who are unavoidably exposed to infectious tuberculosis in the home;
4. Patients and employees in mental hospitals, prisons and other custodial institutions in whom the incidence of tuberculosis is known to be high;
5. Children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high.

IV. It is recommended that efforts be continued to perfect and to meet in practice suitable standards for the production of BCG vaccine, and that when practicable commercial firms be licensed under the National Institutes of Health to produce this vaccine.

V. The Society believes that since BCG vaccination affords only incomplete rather than absolute protection, the most effective methods of controlling tuberculosis in the general population are:
(a) Further improvement of living conditions and the general health;
(b) Reduction of tuberculous infection, which can be accomplished by modern public health methods and the unremitting search among presumably healthy individuals for patients with infectious tuberculosis;
(c) Prompt and adequate medical and surgical treatment of patients with active disease;
(d) Segregation and custodial care of those not amenable to accepted forms of therapy;
(e) Adequate rehabilitation.

VI. It is to be emphasized that BCG vaccination must not be regarded as a substitute for approved hygienic measures or for public health practices designed to prevent or minimize tuberculous infection and disease. Vaccination should be regarded as only one of many procedures to be used in tuberculosis control.

VII. Expansion of modern diagnostic, therapeutic and rehabilitation facilities is required at this time to make full use of these new methods which can accomplish further dramatic reduction of tuberculosis mortality and morbidity rates in the United States.

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THE NEW LOOK IN HEALTH DEPARTMENT REPORTS

THE epidemiology of ideas is a study quite as engrossing as the epidemiology of disease. One need not be much of a philosopher to feel rewarded for the time he takes from his work-a-day affairs to observe the rise and wane of mental infections. Even a dilettante philosopher may be disheartened as he witnesses the decline of a good idea, but he will be warmed anew as he observes promising conceptions spreading steadily among an ever-widening circle of susceptible contacts.

Happily, we seem now to be in the active stage of a promising outbreak. The idea currently assuming epidemic proportions is only this: an annual health department report may be a potent educational medium. On the surface, that hardly seems a dangerously contagious thought, but it possesses, we hope, all the infectious potential of a subversive doctrine.

In one of the war years a health officer began a report with these words, " . . . due to the pressure of essential activities, and the fact that annual reports are seldom read except by those who are professionally interested in the statistical data contained therein, there will be no detailed written summary . . . " Better than any essay, this fraction of a sentence portrays a once common attitude toward annual accounting of health services.

It may be that some health officers, and the administrators of some voluntary agencies, still look upon an annual report as a chore, a nuisance to be put off or, if possible, avoided altogether. When law, or case-hardened convention, demands a published accounting, then to some hapless subordinate must be delegated the task of cramming between hard covers all the usual array of dull title pages, stilted letters of transmittal, interminable listings of board and staff members, and whatever else seems likely to dampen any curiosity the reader might have about the life-and-death tables and the tabular summaries of services rendered which fill the bulk of such a report.

Each year, however, a few more health department and health agency executives are recognizing in the year-end accounting high potentialities for influencing men's minds.

Variety in presentation in many recent reports bespeaks the planning and invention that go into present-day city and county health service. Some appear as brightly covered pamphlets, but one is in newspaper form with eye-catching headlines, each pointing up the news of a departmental activity. Another is a wall calendar, each page adorned with an interesting, informative picture and a legend explaining the service.

An example is more convincing than a generality. Only because this is so, do we single out one specimen from among many to make our point. The example, selected, from among several equally good, begins in this way, " The First Twelve Months is a report to the people of Erie County by their Health Department. Here are the highlights and accomplishments of 1948—a year of organization, and a year of beginning." These unpretentious words, set in large and friendly type, cover the page commonly condemned to carry the letter of transmittal to the Honorable Mayor and the Honorables of the Board of Aldermen to whom the perfunctory report is inevitably " hereby respectfully submitted."

" *The Past is Prologue* " is the title given to the foreword which tells briefly and clearly how the joint city-and-county health department was set up. This account, at the same time readable and solidly informative, occupies the pages commonly devoted to interminable listings of the names of board members and all the professional and clerical components of the departmental staffs—names of scant interest to any but the possessors thereof.

Under the happy heading, " Design for Service," the Commissioner gives a straightforward account of the formidable job of setting up the new county organization. Then follow the stories of the departmental activities, each clearly told, each provocatively named, each helpfully illustrated with news photographs of people doing things, drawings skillfully employing stylized figures, graphs readily comprehensible, and useful charts and maps.

The report is so solidly thought out and so ingeniously devised that the temptation is great to tell about its mechanics and the way it was gotten out on time. But these matters are not the point. However good the form of presentation, it is the substance that interests us, for here is a " report to the people," a report written in words that are meaningful to the men and women of Erie County whose hard-

come-by cash the department spends. These people have every right to know what is done with their money. Further, they have every right to expect to be told in a narrative written in terms of their comprehension. And this the Erie County Health Department does successfully.

Library shelves are cluttered with annual reports. Take one at random. Blow away the dust. Open it, and the chances are good that you will find: a lifeless title page naming the year of the "annual report"—two words that warn of the dullness awaiting the unwary. Then will follow a stilted letter of transmittal, then a listing of names. Whatever else may come between these custom-ordained flourishes and the bulk of tables is almost sure to bear the stigmata of a deadly annual repetition, amended only as necessity demands. Reports of this type served only a single purpose: they fulfilled the letter of the law or the equally unrelenting dictate of sclerosed custom.

Not all annual reports of the past were so wasteful and futile, to be sure. Through the decades of general neglect, some few health officers, and agency executives, continued to write reports that were revealing and presumedly influential. But they were few. Now a blessed change is clearly evident. So many health administrators are turning their reports into documents that really report—in terms of the reader's interests—that the 1948 crop seems a far cry indeed from the typical products of the past decades. Public health services generally will be greatly strengthened when all men and women in authority strive to make their year-end accountings as readable and influential as is this year's "report to the people of Erie County."

GRANTS-IN-AID FOR PUBLIC HEALTH

A RECENT *Bulletin* of the United States Public Health Service,[1] telling the story of "Ten Years of Federal Grants for Public Health," is significant as a record of an outstanding public service and as a guide for future policy.

The first Federal Social Security Act of 1935, among its general provisions, authorized substantial federal grants to the states for assistance in the development and support of state and local public health services. Formulation of the basic policies under which this program was carried out we owe largely to Dr. C. E. Waller in charge of the Division of Domestic Quarantine of the U. S. Public Health Service from 1931 to 1939. Grants for general health services actually began in 1937; for venereal disease control in 1939; for tuberculosis control in 1946; and cancer control, mental hygiene, and hospital planning and construction are now also specifically included.

Allotments to the Public Health Service for such grants-in-aid have increased from under 8 millions in 1937 to under 22 millions in 1946 and over 35 millions in 1948.

Small as these appropriations are in relation to the total federal budget, the results accomplished have been nothing less than spectacular. During the period 1935 to 1946, the number of state health departments reporting specific identified projects in various specialized fields, in or prior to the designated year, increased as follows: tuberculosis control 19 states to 46 states; venereal disease control 28 to 45; industrial hygiene, 4 to 38; public health nursing, 30 to 46; public health education, 16 to 43; dental hygiene, 16 to 43; cancer control, 5 to 27; nutrition, 7 to 29. The significance of such broadening of scope is great; and the major

stimulus to such development has come from the grants-in-aid. In the same period, and largely under the same stimulus, full-time local health units have increased from 561 to 980.

It is encouraging to note that the federal program has not—as some had feared—tended in any way to diminish local initiative. Under the system of administration in force (using in most cases a matching requirement), the increase in state and local funds has exceeded the increase in federal funds. In 1937, a grand total of 22 millions was spent for all state and local services, of which 37 per cent came from federal sources (including both the U. S. Public Health Service and the U. S. Children's Bureau). In 1946, the grand total was 109 millions, of which only 28 per cent came from Washington. Federal grants have not resulted in a decreased sense of local responsibility, but exactly the reverse. They have primed the pump for more and more fruitful drafts on state and county resources.

The *Bulletin* under review is a purely factual one and very properly contains no discussion of the basic philosophy of federal grants-in-aid. This is a subject, however, on which this JOURNAL, as the organ of the public health profession (which is on the receiving end of the process) may properly express an opinion. Every now and then an address is delivered, or an essay is written, which views with alarm the fearful prospects of federal domination of state policies supposedly involved in grants from Washington. It happens that the writer of this editorial has for more than thirty years been a member of a state Public Health Council which has been the recipient of federal grants; and is in position to testify that such fears are wholly illusory. Experience has shown that federal fund-granting agencies are normally highly conscious of the fact that each state has two senators, who are quite readily accessible to a word from the state capitol. It is reasonably certain that if there are faults in the actual operation of the program, they lie in too much, and not too little, deference of Washington agencies to local opinion.

We sometimes meet with statements which contrast the alleged bureaucratic control supposed to be involved in government grants with the freedom of initiative characteristic of the contributions of voluntary agencies. This contrast again is fallacious. We do not for a moment imply that voluntary agencies have, in practice, exercised undue pressure. Such is not the case. That they could exert such pressure, if unwisely directed, is however clear. Their managing boards are, in actual fact, largely self-perpetuating and the general public has no control over their conduct. Governmental agencies, on the other hand, are responsible to the citizenship which supports them. They are highly susceptible to pressure from individual citizens or groups of citizens. It may be suggested that those who lie awake at night in fear of federal domination have at the bottom of their minds a different concept of government, which assumes that domination by someone is essential and that such domination can best be exercised by themselves. In a democracy, as we conceive it, the government is Our Government. It cannot tyrannize over us because we control it; and we accept the underlying faith of the founding fathers in the ultimate soundness of the democratic process.

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ANTISEPTIC SEA WATER

SOME challenging problems are raised by recent studies of Ketchum, Carey, and Briggs[1] on the viability of colon bacilli in sea water. These investigations, conducted at the Woods Hole Oceanographic Institute, have brought out two major points.

In the first place, the observers have found that, when sewage is discharged into tidal estuaries, the reduction of coliform organisms is much more rapid than that which could be accounted for by dilution (the dilution being measured by changes in salinity).

In the second place, the investigations showed that, when sea water was inoculated with *Escherichia coli*, the colon bacilli died off at a reasonably rapid rate, over a tenth of the initial population disappearing in each 24 hours so that in a week the number left was infinitesimal. When the sea water was boiled, the same result was observed. The striking new fact was disclosed, however, that, when the sea water, instead of being boiled, was autoclaved for 10–15 minutes, the rate of reduction was slowed down to one-twentieth of its normal rate, so that the first 10 per cent reduction was apparent only after 20 days. The authors are inclined to attribute this phenomenon to the presence of antibiotic or other antibacterial substances which are destroyed by autoclaving but not by boiling. It would seem equally plausible to assume that the mortality of colon bacilli in ordinary sea water is due to lack of necessary food stuffs (rather than to toxic effects); and that the process of autoclaving produces split products which enable the coliform bacteria to maintain themselves more efficiently.

REFERENCE

1. Ketchum, B. H., Carey, C. L., and Briggs, M. Limnological Aspects of Water Supply and Waste Disposal. *A.A.A.S.*, 1949, p. 64.

Clearing House on Public Health Salary Information and Personnel Needs

OKLAHOMA RECRUITS

Oklahoma has a state personnel board serving the departments of health and welfare and the crippled children and employment security commissions. Like every other state, Oklahoma suffers from personnel shortages in its state and local health departments. Both state and local health department personnel supervisors visited colleges for recruiting sanitarians. They were so persuasive that all sanitarian positions in the State Department of Health have been filled through the hiring of 15 sanitarians. In addition, Roy Dillon, supervisor of the merit system, reports that there is a register of 21 college men who have passed the written examination for this position. Joe Rogers, the health department personnel officer, reports that during the war no exceptions were made to the requirement of college degrees for sanitarians. He hazards the guess that no other state made so good a record. (Does anyone wish to challenge this statement with a better success story?)

The results show what can be done if recruitment is made a major concern. It points further to the necessity of convincing appropriating bodies of the danger of allowing public health workers to become the new "submerged" profession, now that teachers have finally announced and acted upon the announcement that they are citizens as well as public servants. There has been some fear that recent $500 increases in teachers' salaries in the state may make the recruiting job, particularly of sanitarians, harder.

Illustrative of the personnel board's activities are two Oklahoma newspaper clippings. One is a small news item in the *Daily Oklahoman* entitled "Help Wanted Sign Hung Out by State" announcing examinations for stenographers and other office personnel; a later one, an illustrated news story of a photogenic University of Oklahoma graduate who went through the examination, interview and hiring process, and is now employed as a typist in the State Personnel Board. Its title is, "State Offers Job Opportunity. Applicant Knows Answers"; its punch line is, "A similar process is going on for numerous other young people seeking government jobs."

WISCONSIN UPS PUBLIC HEALTH SALARIES

Following a legislative survey of salaries and job specifications in the state, a Senate Bill passed by the recent session of the Wisconsin State Legislature establishes $10,000 as the state health officer's salary, a one-third increase over the previous ceiling. At the same time, increases of from 5 to 10 per cent in the salary ranges of all medical positions in the State Health Department were authorized. These increases had been authorized on a temporary basis a year earlier while the study was in progress.

Following this state study the personnel officer of the State Health Department is analyzing local health department salaries. It is to be presumed that the state level increases will have some influence on raising local salaries as well.

RHODE ISLAND'S RECRUITING DRIVE

Unusual success in recruiting workers in Rhode Island prompted the request for a description of its plan, which

uses the services of a professional advertising agency. Arnold McDermott, Chief of the Administration Division, Rhode Island Department of Civil Service, prepared the following discussion of the plan which seems to be solving some of the problems of recruitment for governmental positions in that state.

For almost two years, the Rhode Island Department of Civil Service has carried on an intensive recruiting program to supply the personnel needs of the various state departments. In the first year of this drive the number of applicants per examination increased approximately 70 per cent, longer lists of eligibles were established, and the needs of appointing authorities were more adequately met.

With the revision of the state pay scales in July, 1947, and with the termination of war contracts in Rhode Island industries, the time seemed appropriate to capitalize on the improved salary plan and the increasingly favorable labor market. Moreover, an analysis of examination costs clearly showed that the process of repeating examinations was expensive.

Since the conventional civil service recruiting methods had been inadequate in the past, the services of a professional advertising agency were engaged to conduct a recruitment campaign. The drive was initiated by an advertisement appearing in the 6 daily newspapers of the state. The ad was large enough to arouse the immediate interest of the public. It was supplemented by one minute spot announcements and chain breaks over Rhode Island radio stations. Window displays were set up in the offices of the Employment Service and the Bureau of Internal Revenue in downtown Providence, and fliers describing job opportunities were distributed in the Employment Service offices.

Procedures for handling the advertising were worked out carefully by the advertising agency and the Department of Civil Service. The agency negotiates with newspapers and radio stations while the department reviews program and determines policy. The radio scripts are used by the stations as public service announcements without charge. The stations, of course, fit the copy into their program schedules as they see fit. Nevertheless, the record shows that the 11 Rhode Island stations donate an average of 300 spots per month to the state, many of them favorably located in high rating news or record shows.

The campaign thus far appears to be tremendously successful. In the fiscal year 1946-1947, with no advertising, 3,573 applications were received for 132 announced examinations—an average of 27 applications per examination. In the current year, with advertising, 180 examinations announced brought 8,286 applications—an average of 46 per examination. This represents a 69 per cent increase in the average recruitment per examination.

Special campaigns to recruit in critical areas are put on from time to time. An intensive advertising campaign for mental hospital attendants resulted in the filling of all positions for male and nearly all for female attendants at the State Hospital. Recently, a high-powered drive for clerical workers brought a total of 2,400 applications from 1,100 candidates. In this drive. besides the regular advertising, members of the staff of the Department of Civil Service visited commercial classes of the various high schools to encourage interest among the senior class in civil service examinations.

The department's budget for advertising amounts to approximately five per cent of the total appropriation.

Credit Lines

"MIND IN THE SHADOW" HAS ITS EFFECT

The Columbia Broadcasting Company has published a very effective brochure, with line drawings, that tells the story of the *Mind in the Shadow* broadcast, first made over its nation-wide network on February 2 and rebroadcast on February 20, 1949, following insistent public demand. This is a sharply documented story of the shocking inadequacy of the institutional care now being given men and women whose minds are sick—and a story of the prevailing public attitude toward mental illness. The brochure manages to convey some of the explosion this broadcast created and quotes what Minnesota's Governor Youngdahl, Dr. Menninger, the press, and many others said. The key to what CBS itself believes was the important effect is its selection of this quotation from a letter: "I now feel free to pursue action to get mental treatment for a loved one . . . action long shunned because of my desire to hide, ignore, or simply silently hope for the best . . ."

The hour long program is available for rebroadcast in 16m., 33⅓ R.P.M. electrical transcriptions for $9.40, including shipping charges. A limited number of scripts are available without charge. Columbia Broadcasting Company, 485 Madison Avenue, New York, N. Y.

THE SOUTH AND A HEALTH PROGRAM

The nation is no longer "half slave and half free" in the sense that Lincoln used the terms. But that there is still unnecessary regional inequality has long been abundantly clear. Thus, *How a National Health Program Would Serve the South* and *Providing Adequate Health Services to Negroes*, point up the fact that a national health program would provide the means by which the low income southern states might overcome many of their deficiencies, particularly among Negroes, in public health and medical care. Each pamphlet makes use of comparative statistics for southern states and those in other regions and for white and non-white. A non-white mortality rate from tuberculosis more than three times that for whites, a syphilis rate more than four times, are among the dramatic but even yet too little acted upon figures. Both pamphlets are restrained, factual, and effective. Along with them was received another, *Restrictions on Free Enterprise in Medicine*, which details the restrictions upon freedom of practice by members of its own profession, that organized medicine has fostered.

The three pamphlets are available, presumably without charge, from The Committee on Medical Economics, Washington, D. C.

MINNESOTA GETS ON THE BAND WAGON

Minnesota has been one of the few states without a permissive health unit law. But one was enacted by the 1949 legislature after having been defeated in 1947. Now comes word that Hennepin County has organized the first full-time county health department in the state. A five member county board of health was authorized by the County Commissioners, as well as a one mill levy on rural residents, numbering about 140,000. The board is now seeking a county health officer. When he assumes his duties, all townships, village, and city health officers, except in Minneapolis, will be relieved of their responsibilities in the interest of a unified administration in the rural areas of the county.

Congratulations to the Hennepin

County Health Council and the County Public Health Nursing Association, which are reported to have been among the "key organizations behind the drive." It can be assumed that congratulations are also in order for the state health department.

WESTERN BRANCH ANNUAL

The 1948 *Annual* of the Western Branch, A.P.H.A. has recently been published and contains a resume of the papers presented at the 1948 meeting in Salt Lake City. The subjects discussed were: Child Health, Public Health Administration and Hospital Programs, Public Health Aspects of the Cancer Problem, Infectious Diseases, and Public Health Hazards. The *Annual* was prepared by a publication committee whose chairman was Dorothy B. Nyswander, Ph.D., of the University of California School of Public Health. The Committee and the Western Branch are to be congratulated for making this material available to all of its members.

CEREBRAL PALSY PROGRAM OF NATIONAL SOCIETY FOR CRIPPLED SUMMARIZED

A "Liaison Report of the National Society for Crippled Children and Adults to the American Academy of Cerebral Palsy" is a summary of the society's national cerebral palsy program initiated in 1946. It reads as an impressive record of public and professional education, liaison with medical specialty groups, scholarship programs supported by a variety of agencies, workshops, films, etc., through a cerebral palsy division of the society. The medical advisory council of the society took the initiative in forming the American Academy for Cerebral Palsy, whose Chairman, Winthrop M. Phelps, M.D., serves as liaison officer with the national society of whose medical advisory council he is also a member.

This document is illustrative of the magnitude and complexity of the cerebral palsy problem and the programs for dealing with it. It brings to mind the necessity for coördinating the various efforts in this field and the responsibility that agencies operating in it have to fit them into a well rounded harmonious pattern. Otherwise, the public which supports the activities may shut its collective pocketbook in irritation over its confusion.

The 14 page mimeographed report is presumably available without charge from the National Society for Crippled Children and Adults, 11 South La Salle Street, Chicago 3, Ill.

FOOTNOTE: The news has recently been announced that the newly created National Foundation for Cerebral Palsy (*A.J.P.H.* 39: 491 (Apr.), 1949) has changed its name to the United Cerebral Palsy Associations. The association is making plans for bringing together all the agencies interested in cerebral palsy to develop a national and local program that is neither competitive nor overlapping. Its Executive Director is Pat Rooney, formerly Associate Director of the American Social Hygiene Association in charge of membership and finance. Its Medical Adviser is Winthrop M. Phelps, M.D. Its temporary offices are at the New York Academy of Medicine, 2 E. 103rd St., New York City.

As a second footnote, readers might be referred to "Parents in Arms" by Beatrice Schapper (*Survey* 85:6 (June), 1949) for light on some of the motivations and emotional drive out of which have converged these lines of cerebral palsy activity.

BLUEPRINT FOR WORKING TOGETHER

In Montgomery County, Maryland, the Health Department and the Tuberculosis Association have drafted a five year plan for working together toward the goal of removing tuberculosis from the roll of public health problems in the county. By the plan the department assumes complete responsibility for routine clinic activities and provides personnel for the follow-up necessary in an increased case finding program. For this purpose a tuberculosis director and medical-social consultant in tuberculosis have been added to the Health Depart-

ment staff. Case finding activities, including the necessary health education, are the responsibility of the association.

In commenting on the plans, *Montgomery County Community Health* says, "This plan is unique, not in the working relationship set forth but rather in the clear line of responsibility worked out between an official tax-supported agency and a voluntary one . . . It is a workmanlike partnership, in which each recognizes and respects the contribution of the other."

USING YOUR LOCAL NEWSPAPER

Its front splashed with imaginary headlines about health matters in Louisiana and the maxim in red, *Health News is Good News*, a leaflet of the Louisiana Health Department suggests the usefulness of the local newspaper in telling people about the health department and getting their active use and support of it. Humorous drawings indicate what interests editors. The leaflet is well worth a look by those who have responsibility for health education through mass media.

NOTHING NEW UNDER THE SUN

In case anyone believes that a medical care program is both revolutionary and modern, he should read the July, 1949, issue of the *Baltimore Health News*, which is devoted in full to "The Origins Of The Baltimore City Medical Care Program, 1776–1948," by the Health Commissioner, Huntington Williams, M.D. It would appear that the Baltimore Medical Care Program which matured only very recently was the logical outcome of a long history of evolutionary development.

EXPLOITING MEDICINE MAN TECHNICS

The Florida State Board of Health, joining in the national campaign against venereal diseases, in addition to newspaper and radio publicity and talks, has come up with a new idea in venereal disease health education to discover early infectious syphilis. During July and August, five field investigators with cars especially equipped with loud speakers and portable record players went into certain areas, particularly at cross-roads filling stations, or in front of "jook joints" to play popular musical records. When a crowd had gathered, the program began. Special recordings put out by the Columbia Broadcasting Corporation were used to get across the message of prevention and early cure of the venereal diseases. At the same time pamphlets and other education material were distributed to spectators.

TUBERCULOSIS IN INDUSTRY

The Industrial Hygiene Foundation (4400 Fifth Ave., Pittsburgh 13) has prepared a special pamphlet, *Tuberculosis in Industry*, of a panel discussion of the medical conference held in connection with the foundation's 13th annual meeting in Pittsburgh in November, 1948. The six panel papers discussing mass x-rays, placement of tuberculous workers, job security, compensation, should be of interest to the industrial hygienist in the health or labor department and in industry.

The Industrial Hygiene Foundation is made up of a variety of large industrial concerns. The Chairman of its Medical Committee is A. J. Lanza, M.D., Chairman of New York University's Institute of Industrial Medicine; among the members of its Board of Trustees are Dr. Lanza, C. D. Selby, M.D., Medical Consultant of General Motors, Philip Drinker, Sc.D., of the Harvard School of Public Health, and R. R. Sayers, M.D., Chairman of the Medical Advisory Board, U.M.W. Welfare and Retirement Fund.

WORTH ACQUIRING

Social Services in Britain will give you in summary form what social services are being carried on in Britain by

the government and by private agencies. Includes a selected bibliography. British Information Services, 30 Rockefeller Plaza, New York 20.

A packet of materials on cerebral palsy is being distributed by the National Society for Crippled Children and Adults. They are:

Spastics Can Be Happy, by W. W. Bauer, M.D. Reprinted from the *Christian Herald*, May, 1949; *How to Choose Toys*, by Grace Langdon, Ph.D., published by the American Toy Institute: *The Crippled*, by Lawrence J. Linck, reprinted from the 1949 *Social Work Year Book; Preliminary Steps in the Setting Up of a New Treatment Unit*, by Jean Botek, O.T.R.; " . . . *but the Spirit Giveth Life*" by Howard A. Rusk, M.D., reprinted from the *Survey*, April, 1949.

These are available, presumably without charge, from The National Society for Crippled Children and Adults, 11 South La Salle St., Chicago 3.

Instructional Plan for Basic Tuberculosis Nursing has been added to the curriculum guide for schools of nursing, of the National League for Nursing Education. It is a study guide for instructors and supervisors that is adaptable and pertinent to in-service training programs for public health nurses. National League for Nursing Education, 1790 Broadway, New York 19, $1.00.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

America's Health: A Report to the Nation—*By the National Health Assembly. New York: Harper,* 1949. 388 pp. Price, $4.50.

For those with brief memories a word may be said of the origin of the National Health Assembly before commenting upon this belated volume.

The 800 men and women bidden to Washington in the first week of May, 1948, were chosen with nice discretion as to their professional and intellectual competence and freedom from partisan political bias. On no previous occasion within the reviewer's memory were the citizens of the United States so well represented by persons possessed of the essential facts and competent to express sound opinions as to the needs of our people for health protection and medical care and to give voice to opinions on basic policies to satisfy these needs.

The role of the U. S. Public Health Service cannot be too generously acknowledged. Their officers and staff made the signal success of the meeting a matter of universal admiration. The modesty, competence, and open-mindedness of these career men and women made them perfect collaborators at the official level with no least hint of bureaucratic rigidity or dominance.

A spirit of critical give-and-take and an astonishing perfection of the democratic pattern of discussion and decision revealed the quality of the members and can be read in each of the 14 section chapters and the one devoted to international coöperation in health.

There is no better brief endorsement of the contents than a paragraph of Mr. Ewing's introduction: "Certainly no one can go through this book without recognizing what a wealth of factual information and food for thought is provided. Practically every vital problem affecting the health of an individual or of the community is here explored with painstaking detail."

This book carries no padding. Each chapter poses its question briefly, puts the incontrovertible facts clearly, draws reasonable conclusions for achieving a 10 year goal, names the participants and stops. One must indicate the chapter subjects as a least excitant to public and a wide reader curiosity:

Medical and Health Personnel
Hospitals
Local Health Units
Chronic Disease and Aging
Maternal and Child Health
Rural Health
Research
Medical Care
State and Community Planning
Rehabilitation
Dental Health
Mental Health
Nutrition
Environmental Sanitation
International Cooperation

While it is tempting to play favorites, it is clear that there is so much experience and imagination shown in dealing with each topic that even a fanatical promoter of some one-thought panacea is silenced in the face of such balanced and comprehensive coverage.

This is truly a remarkable record of fact and opinion. The print, format, and book-making are good, the index sufficient. Colleges will use this book for many years as source and reference,

and it is excellent lively reading for as many courses as there are chapters.

While physicians were a suitable minority in planning and executive committees and in each section, 10 of the 14 sections were chaired by doctors of medicine.

This is a report intended to influence national policy in the United States. It is not a program, a project, a blue print. The people and their Congress will do well to study and capture the spirit of this report before demanding laws to commit us to a pattern of obligatory conduct as persons or as a people.

HAVEN EMERSON

Safety Thru Elementary Science—*Washington, D. C.: National Education Association,* 1949. 40 pp. Price, $.50.

This bulletin, like others sponsored by the National Commission on Safety Education, sparkles with humorous illustrations but gets down to serious business in its text. Prepared for teachers—as were the others in the series—this bulletin, as the title indicates, approaches safety via the science teacher and the elementary grade pupil. Demonstration is the core of science instruction. "One meaningful experience is worth a thousand words," declares the introduction.

Approximately 200 demonstrations or suggested activities are outlined, each connected with a possible hazard, and each rooted in an understanding of science and in desirable practices. The subjects covered include safe use of mechanical toys, tools, and machines; safe use of electricity; fire prevention; hazards caused by animals, and hazards caused by plants. The associated outline form is a feature of the bulletin and adds to its readability. An appendix deals with descriptions of harmful reptiles, insects, arachnids, and plants.

Credit for assembling the material is given to Anna E. Burgess, directing principal of Cleveland Public Schools, and former Cleveland supervisor of elementary science. Specialists in science and education from a dozen states reviewed the bulletin and offered suggestions.

Aside from school use, this publication will be helpful to public health nurses, health educators, and safety consultants who share in the responsibility for the education of the public in accident prevention. The more we know about the causes of accidents the less fear we shall have for the safety of ourselves and for others whose care is our responsibility.

The avoidance of many common accidents is predicated upon a knowledge of elementary science.

ETHEL M. HENDRIKSEN

Having Your Baby. Modern Instructions for Expectant Mothers—*By Leonard H. Biskind. Portland, Ore.: Western Journal of Surgery Publishing Co.,* 1949. 96 pp. Price, $2.50. Blue Paperbound Economy Edition, price, single copy, $1.00.

This little book in outline form attemps to cover all the questions a modern prospective mother is expected to raise. It assumes that the answers to these questions are essentially those her private physician would, or should, give at each prenatal visit in his own office. Dr. Biskind urges the expectant mother not to hesitate to discuss her obstetrical problems with her physician. However, "on the other hand, please respect his time, realizing that he has other patients to attend and other duties to perform." This leads to the statement that there are prenatal classes in many large cities which she may attend after consulting her obstetrician. The fact that many expectant mothers have not been able to secure satisfactory answers to certain of their questions is one of the reasons why these prenatal classes have become so popular and drawn thousands of mothers to their support.

The questions are answered categorically under 57 captions in a matter of fact manner, with a full page given to each subject regardless of whether or not the material takes up little or much space, thus a considerable amount of blank space appears. The questions have been well chosen and few obstetricians would differ with the factual answers. No attempt, however, has been made to present the material by modern methods of health education. A helpful glossary and index complete the book.

While this book is sound from the obstetric standpoint, there is much to be desired to capture and hold the attention of mothers by attractive illustrations and format such as one finds in other modern books and pamphlets on prenatal care.

RICHARD ARTHUR BOLT

New Hope for the Handicapped—*By Howard A. Rusk* and *Eugene J. Taylor. New York: Harper,* 1949. 231 pp. Price, $3.00.

The relatively new field of rehabilitation, the restoration of the handicapped to social and economic usefulness, offers millions of disabled persons new hope for productive and independent living; in the past 20 years, we have given more and better attention to the handicapped among us than ever before in history. The story behind the rapid and remarkable evolution of rehabilitation as the vital "third phase of medical care" is told fully and effectively in *New Hope for the Handicapped.*

The authors, Dr. Howard A. Rusk and Eugene J. Taylor, combine an encyclopedic knowledge of their subject with an ability to discuss it in terms the layman can understand. Case histories throughout the book offer a frame of reference on which handicapped persons can predicate their own hopes for physical restoration, and medical and social service personnel will gain a greater understanding of the field of rehabilitation from the social and historical analyses presented.

The chapters devoted to the growth of rehabilitation in the armed services and the Veterans Administration are particularly impressive; starting almost from scratch during the second World War, the government and the military organizations now provide the handicapped veteran with the best rehabilitative and medical treatment anywhere in the world. The far larger numbers of civilian disabled are not, unfortunately, as well treated. Although most of the centers for rehabilitation of the civilian disabled are excellent in themselves, the authors point out that they are inadequate to care for all those persons who could be helped by rehabilitation. Persons with disabilities formerly thought irreparable represent a vast economic and social potential to the nation which must be developed by effective, coördinated service to all the handicapped everywhere. HENRY H. KESSLER

A Guide to the Teaching of Health in the Elementary School—*Albany, N. Y.: University of the State of New York,* 219 pp.

This guide, prepared under the supervision of the Division of Health, and Physical Education of the University of the State of New York, with the coöperation of many individuals, is "an outgrowth of teachers' experiences in guiding children in the classrooms of the state and of the work of health teaching committees and study groups of teachers, supervisors and administrators." It presents a philosophy for a modern functional program of health instruction based on the needs and interests of pupils.

Due consideration is given to the integration of health teaching and school health services. The guide points out the need for providing an environment that is favorable to healthful living and

for guidance of children as they grow and develop. The educational implications of vision testing, hearing testing, and of medical examinations are discussed at length.

Specific suggestions are offered regarding procedures to be used in building a curriculum to meet children's health needs. This section includes consideration of school-home coöperation, finding and meeting children's health needs, and the physical and social environment of pupils.

A series of "resource units for health teaching" includes discussion of various health problems and suggestions concerning their solution. Desirable pupil activities, according to grade level, are included.

This guide should be of value to individual teachers and also to curriculum committees. It is well organized, constructive, and stimulating.

CHARLES C. WILSON

Medical Etymology—*By O. H. Perry Pepper. Philadelphia: Saunders,* 1949. 263 pp. Price, $5.50.

The author points out that less than 5 per cent of our medical terminology is of Anglo Saxon origin and he has presented a refreshing volume that shows where the rest of it comes from through the Greek, Latin, Arabic, Semitic, French, or Italian languages. The volume represents a rich source for students, especially those of today who do not approach science with the background of Latin and Greek. Indeed, anyone who wishes in condensed form an accessible list of words with their derivation and definition will find this volume fascinating.

REGINALD M. ATWATER

A Psychiatric Approach to the Treatment of Promiscuity—*New York: American Social Hygiene Assn.,* 1949. 81 pp. Price, $.75.

This report is a sequel to a study, *An Experiment in the Psychiatric Treatment of Promiscuous Girls,* initiated by Dr. Ernest G. Lion and others, which was published as an appendix to the *Journal of Venereal Disease Information* in 1945. The present report reviews application of the method to males as well as females.

With the support of the U. S. Public Health Service and other agencies, arrangements were made for the referral of promiscuous or potentially promiscuous patients of the San Francisco Venereal Disease Clinic to a Psychiatric Service, consisting of a psychiatrist, psychologist, and psychiatric social worker. Histories of the extent and character of promiscuity, the patient's attitude, and relevant details were secured by the psychiatric social worker. Patients who desired help and were considered able to benefit from it were seen by the psychiatrist. A number of psychological tests and the records of social and health agencies were utilized to assay the patient's potentialities.

Of the 1,557 patients who had been seen in the Psychiatric Service, this report deals with 620, selected serially in order of their referral. Forty-three per cent of the studied cases did not utilize the service. It was possible to follow 52 per cent of those who did avail themselves of this service. Of those followed, 83 per cent were classified as improved. In effect, then 18.5 per cent of all cases referred to the Psychiatric Service were known to have abandoned or reduced the amount of their actual or potential promiscuity during a subsequent period of one year.

A number of interesting tables are given relating to the 620 patients referred to the service, bearing upon marital status, family background, education, intelligence, promiscuity, race, and other factors. It is questionable, however, how much weight can be placed upon these data because of the selection of the patients for referral. Of great

interest are the discussions of the types and motivation of the patients seen. This report will be of greatest interest to everyone concerned with venereal disease control. JAMES H. LADE

Suggested School Health and Safety Policies—*Fresno, Calif.: Fresno County Schools,* 1949. 85 pp.

This is a well prepared 85 page mimeographed handbook with a distinctive format which enables easy use. It represents a coöperative undertaking of the Fresno County (California) Elementary Principals Association, the Fresno County Health Department, and the Office of the Fresno County Superintendent of Schools.

Addressed to school administrators, the handbook contains detailed discussions of factors essential to the health and safety of school children. The need of providing worthwhile and lasting contributions to their health and welfare is stressed. The responsibility of each member of the school staff, including specifically the administrator, teacher, nurse, custodian, lunchroom director, and bus driver, are set forth and documented by quotations from the California law. The important fact that the health and safety of school children require the coöperative action of each staff member is emphasized. Suggestions are included for obtaining the coöperation of health agencies and parents, and the list of pertinent services offered by the office of the County Superintendent of Schools, is particularly helpful.

The handbook deals with practical situations pertaining to local conditions. It does not include a teaching guide but contains considerable material which can readily be adapted to classroom teaching. Although designed specifically for use in Fresno County, it might well serve as a working model for the development of handbooks in other areas. It should be of particular interest to health departments as an indication of the manner in which health and school authorities can coöperate in this field. W. GRAHAM COLE

Fundamentals of Pulmonary Tuberculosis and Its Complications—*Sponsored by the American College of Chest Physicians. Springfield, Ill.: Thomas,* 1949. 470 pp. 182 illus. Price, $9.50.

This volume, sponsored by the American College of Chest Physicians, was written by more than a score of tuberculosis specialists. In consequence, while there is some duplication, there is surprisingly little disagreement. This method of presentation has the advantage of bringing to the reader opinions based on personal experience.

All of the phases of tuberculosis of interest to the student and physician are considered in a most practical way. Not much space is given to the questionable theories. Controversial matters are minimized. Some features, frequently neglected, such as psychosomatic and public health aspects of the disease, are adequately treated.

There is an excellent chapter on major surgical procedures showing a favorable attitude toward primary resection in selected cases. The role of the bronchial tree in the pathogenesis and treatment of tuberculosis is discussed in detail.

BCG is given qualified approval. Streptomycin therapy is discussed in relation to the several types of the disease and its tuberculous complications. Therapeutic abortion in pregnancy is frowned upon.

One gets the impression in reading this book that the authors are interested in their patients and not merely in the disease tuberculosis. If a patient, as a result of treatment, becomes a respiratory cripple, even though the disease becomes stabilized, the result should not be considered "excellent."

The neglect of the tuberculin test and

sputum examination for tubercle bacilli is responsible for most of the errors in the diagnosis of tuberculosis today.

JOHN H. KORNS

Help Yourself to Better Sight—*By Margart D. Corbett. New York: Prentice Hall,* 1949. 218 pp. Price, $2.50.

This volume repeats many of the shortcomings of previously written books on the same subject. Half-truths and fiction about improving eyesight through exercises are represented by the author as a further development of Bates' discredited techniques.

The author fails to mention the excellent critical research reported within the last three years by the staffs of the Wilmer Eye Institute in Baltimore and of the Washington University Department of Ophthalmology in St. Louis. The results of both these studies in treating myopia with exercises were largely negative. Nor does the author mention the recent findings of the U. S. National Bureau of Standards, of the Inter-Society Color Council, of the American Committee on Optics and Visual Physiology representing three ophthalmological organizations, and of the Association of Schools and Colleges of Optometry. Studies made under the auspices of these groups showed that practice and coaching often will enable a color-deficient person to show an improved score on an imperfect test. Such practice and coaching, however, do not contribute to rehabilitation in the true sense of the word because the skills developed have no practical value except to defeat the purpose of the screening test.

Possibly such exercises as "the elephant swing, the sailor swing, shuttling the 'o,' the shuttle shift, the owl and crescent swing" will appeal to the more impressionable, unscientific faddists, and possibly might not do any real harm. But the author recommends one exercise which consists of looking "right through and past the sun itself." Such practice may result in scorching the retina and leaving a permanent and large blind spot.

The whole tone of the work is to encourage self-diagnosis and treatment without any advice as to the desirability of a check-up in order to rule out the possibility of pathological eye conditions, the early recognition of which might permit the saving of eyesight. The book. therefore, is likely to have pernicious effects. FRANKLIN M. FOOTE

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ACCIDENT FACTS. 1949 Edition. Chicago: National Safety Council. 97 pp. Price, $.60.

ATOMIC ENERGY AND THE LIFE SCIENCES. U. S. Atomic Energy Commission. Washington: Govt. Ptg. Office, 1949. 203 pp. Price, $.45.

BLAKISTON'S NEW GOULD MEDICAL DICTIONARY. (1st ed.). Edited by Harold Wellington Jones, Norman L. Hoerr, and Arthur Osol. Philadelphia: Blakiston, 1949. 1,294 pp. 252 illus. Price, textbook ed., $8.50, thin paper ed., $10.75; deluxe ed., $13.50.

CHANGE OF LIFE. F. S. Edsall. New York: Woman's Press, 1949. 122 pp. Price, $2.00.

FOR THE DISABLED SICK-DISABILITY COMPENSATION. Nathan Sinai, Dr.P.H. Ann Arbor, Mich.: School of Public Health, University of Michigan, 1949. 126 pp. Price, $1.00.

GUIDANCE WORKERS' PREPARATION. A Directory of the Guidance Offerings of Colleges and Universities. Clifford P. Frochlich and Helen E. Spivey. Washington: Office of Education, Federal Security Agency, 1949. 45 pp.

INDUSTRIAL TOXICOLOGY. Lawrence T. Fairhall. Baltimore: Williams & Wilkins, 1949. 471 pp. Price, $6.00.

INTRODUCTION TO PUBLIC WELFARE, AN. Arthur P. Miles. Boston: Heath, 1949. 437 pp. Price, $4 00.

L.C.C. HOSPITALS, THE. A RETROSPECT. London: London County Council, 1949. 158 pp. Price, 7s 6d.

MEASURING NURSING RESOURCES. Lois E. Gordner. Washington: Division of Nursing Resources, Public Health Service. 117 pp.

MENTAL HYGIFNE IN PUBLIC HEALTH. Paul V. Lemkau. New York: McGraw-Hill, 1949. 376 pp. Price, $4.50.

NATIONAL HEALTH SERVICE, THE. Prepared by the British Ministry of Health and the Central Office of Information. New York: British Information Service, 1949. 36 pp. Price, $.20.

NUTRITION SURVEYS: THEIR TECHNIQULS AND VALUE. Washington: National Research Council, National Academy of Sciences, 1949. 144 pp. Price, $1.00.

OUTLINES OF BIOCHEMISTRY. (3rd ed.). Ross Aiken Gortner, Jr., and Willis Alway Gortner. New York: Wiley, 1949. 1016 pp. Price, $7.50.

PHENOL AND ITS DERIVATIVES: THE RELATION BETWEEN THEIR CHEMICAL CONSTITUTION AND THEIR EFFECT ON THE ORGANISM. W. F. von Oettingen. Washington: Public Health Service, National Institutes of Health. 397 pp. Price, $.70.

PHOTO-RADIOGRAPHY IN SEARCH OF TUBERCULOSIS. David W. Zacks. Baltimore: Williams & Wilkins, 1949. 290 pp. Price, $5.00.

PINK PILLS FOR PALE PEOPLE. F. William Saul. Philadelphia: Dorrance, 1949. 204 pp Price, $2.50.

REPORT ON HOUSING CONDITIONS. Prepared for the Public Health Committee of the Lancaster City Council by Frederick Shaw, 1948. Lancaster, England: Department of Public Health. 123 pp.

ROLE OF GRANTS-IN-AID IN FINANCING PUBLIC HEALTH PROGRAMS, THE. Joseph W. Mountin and Clifford H Greve. Washington: Govt. Ptg. Office, 1949. 45 pp. Price, $.15.

SIMPLE NURSING, ILLUSTRATED HANDBOOK OF. Wava McCullough and Marjorie Moffit. New York: McGraw-Hill, 1949. 217 pp. Price, $2.40.

SINGLE WOMAN, THE. Robert Latou Dickinson and Lura Beam. Baltimore: Williams & Wilkins, 1949. 460 pp. Price, $4 00.

SOME PROVISIONS IN THE STATUTES OF THE STATES RLLATING TO PUBLIC HEALTH AND SANITATION, INCLUDING PLUMBING; AND, REGULATIONS OF HOUSE TRAILERS AND THEIR LOCATIONS, AND PLUMBING IN HOUSE TRAILERS, TRAILER PARKS OR BUILDINGS. Compiled by L. D. McPherson. Washington: 712 Bond Building.

THOUSAND MARRIAGLS, A. Robert Latou Dickinson and Lura Beam. Baltimore: Williams & Wilkins, 1949. 448 pp. Price, $4.00.

REPORTS RECEIVED

ALFRED P. SLOAN FOUNDATION, INC. Report for 1947–1948. New York: Alfred P. Sloan Foundation, 1949. 62 pp.

ARKANSAS STATE BOARD OF HEALTH. Division of Communicable Disease Control. 12th Annual Report 1948. Little Rock, Ark.: State Department of Health. 20 pp.

ARKANSAS STATE BOARD OF HEALTH. Annual Report 1947–1948. Little Rock, Ark.: State Board of Health. 60 pp.

CHILDREN'S FUND OF MICHIGAN. 20th Annual Report 1948–1949. Detroit, Mich.: Children's Fund of Michigan, 1949. 20 pp.

COOPERATIVE HEALTH ADMINISTRATION IN METROPOLITAN LOS ANGELES. Margaret G. Morden and Richard Bigger. Los Angeles, Calif.: University of California, 1949. 52 pp. Price, $.50.

FEDERAL SECURITY AGENCY. Annual Report 1948. Washington: Govt. Ptg. Office, 1949. 253 pp. Price, $.45.

HYGIENIC INSTITUTE FOR LASALLE, PERU, OGLESBY, THE. 34th Annual Report, 1948. LaSalle, Ill.: Department of Health. 31 pp.

KNOXVILLE, TENN: BUREAU OF HEALTH. DEPARTMENT OF WELFARE 1947–1948. City Department of Health. 47 pp.

LINCOLN-CITY-LANCASTER COUNTY BOARD OF HEALTH. Annual Report 1948–1949. Lincoln, Neb.: State Department of Health. 19 pp.

PENNSYLVANIA, COMMONWEALTH OF. Department of Health Biennial Report, 1946–1948. Harrisburg, Pa.: State Department of Health. 138 pp.

PENNSYLVANIA TUBERCULOSIS SOCIETY. 1948–1949. Philadelphia, · Pa.: Pennsylvania Tuberculosis Society. 20 pp.

RACINE, WISCONSIN. ANNUAL REPORT OF THE DEPARTMENT OF HEALTH. A CENTURY LATER . . . 1948. Racine, Wis.: Department of Health. 29 pp.

RICHMOND, VA. THE FUTURE IS NOW. Annual Report 1947–1948. Richmond, Va.: Richmond City Department of Health.

STATENS BYGGEFORSKNINGSINSTITUTE. The Danish National Institute of Building Research. Annual Report 1947–1948. Copenhagen: Teknisk Forlag, 29 V. Farimagsgade.

TENNESSEE MORBIDITY STATISTICS 1948. Nashville: Department of Public Health, 1949. 43 pp.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Advancing Science Note—Throat washings from German measles patients, if frozen, will remain infective for at least 90 days and will produce rubella in susceptible people. The artificially induced disease does not differ from the natural product. As you will realize, this is a contribution to the scheme of immunizing susceptible brides before they become pregnant.

ANDERSON, S. G. Experimental Rubella in Human Volunteers. *J. Immunol.* 62, 1:29 (May), 1949.

Pocket-Book Neuritis—Are the cosmeticians trying to outlaw the Toni Home Wave in your bailiwick? Don't let yourself be dragged into the battle on health grounds. It says here that careful studies do not support the contention that toxic manifestations result from cold wave preparations.

BEHRMAN, H. T., *et al.* The Cold Permanent Hair-Waving Process. *J.A.M.A.* 140, 15: 1208 (Aug. 13), 1949.

Loathsome, and Dangerous, Too—Three salmonella species, among many others, were recovered from the gut of cockroaches. This suggests that the popular tolerance of these pests is unwise. Especially in households with infants, roach control is clearly of highest importance.

BITTER, R. S., AND WILLIAMS, O. B. Enteric Organisms from the American Cockroach. *J. Infect. Dis.* 85, 1:87 (July-Aug.), 1949.

Pointed Round Table—A variety of evidence is offered which seems to say that nutritional deficiencies modify the usual course of experimental virus infections. Broad generalizations are avoided but the point is offered that viruses, unlike most pathogens, seem to thrive best under conditions of active tissue metabolism.

CLARK, P. F., *et al.* Influence of Nutrition in Experimental Infection. *Bact. Rev.* 13, 2:99 (June), 1949.

Cons as Well as Pros—Though review articles are usually passed over when I thumb the scientific journals in search of papers to be mentioned in this peculiar compendium, our rule is broken in this instance for two very good reasons. The subject (immunization procedures) is close to us all, and this is an especially thorough and balanced presentation. Not to be missed!

EDSALL, G. Active Immunization. *New England J. Med.* 241, 1:18 (July 7), 1949.

Facilities Needed—Among the 2,300 general hospital service areas in the United States, a quarter have no acceptable beds: about 10 million people get along without them. Needs are as great for mental and tuberculous and chronic patients. This is a report of progress—great progress—but there is still plenty to do. We need, among other things, 1,853 more health centers and 1,386 auxiliary facilities, it says here.

HOGE, V. M. Hospital Survey and Construction Program. *Pub. Health Rep.* 64, 32:991 (Aug. 12), 1949.

Letter to Horace, and Other Poems—If it were to be judged solely on its practical value as an addition to your scientific armamentarium, there is a question if this paper should be included in our untrustworthy guide for the preoccupied. But three poems that you'll want to repeat are offered to you. Also the paper is highly readable. Incidentally, it is about the growing problem of the aged and chronically ill.

KLUMPP, T. G. Old Age. *New York State J. Med.* 49, 16:1929 (Aug. 15), 1949.

Solid Researching — Measles virus grown on eggs caused mild symptoms of measles in many—not most—vaccinated children, but whatever protection was afforded was minimal, these researchers report. Clearly, we've still a long way to go along this road.

MARIS, E. P., *et al.* Vaccination of Children with Various Chorioallantoic Passages of Measles Virus. *Pediatrics* 4, 1:1 (July), 1949.

Wise Words of Warning—Industrial health is the people's health so it is a part of the health official's responsibility to his community, but industrial hygiene, like the married state, is not something to be entered into lightly. It calls for a specialized service.

INGRAM, W. T. Industrial Sanitation in a Municipal Health Program. *Modern Sanitation* 1, 4:27 (Aug.), 1949.

They Don't Know or Don't Care —Nearly half the Toronto school kids get each day, a cup of milk, plenty of meat and potatoes, sometimes another vegetable, bread, a piece of pie, one or more pieces of cake, a bottle of soft drink, and lots of candy. Of course, in your town things are different! Or are they?

MCHENRY, E. W. Confusion and Stupidity in Nutrition Education. *Canad. Pub. Health J.* 40, 6:270 (June), 1949.

Bitter with the Sweet—Gloomy reading indeed is this examination of the lack of any decline during the last 20 years in death rates of cancer of the breast. No support is found here for our loud claims that early treatment saves lives, says this analyst.

MCKINNON, M. E. Breast Cancer Mortality, Ontario, 1909–1947. *Canad. Pub. Health J.* 40, 6:257 (June), 1949.

Not Solely Engineering—The stage is set for a nation-covering effort to conserve our priceless water resources. Though it may be only a small one, there is a role for you in the drama that will be played on that stage.

POND, M. A. Water Resources and the Nation's Health. *Pub. Health Rep.* 64, 28:885 (July 15), 1949.

Still Far To Go — Against the astonishing progress in tuberculosis case finding are balanced disheartening lacks in treatment and rehabilitation facilities. So says this editorial commemorating the fifth anniversary of the nation-wide tuberculosis program. Be sure to read it.

SCHEELE, L. A. The First Five Years. *Pub. Health Rep.* 64, 26:817 (July 1), 1949.

It's a Public Health Problem, They Agree—The lions and the lambs (mostly Canadian varieties) sit up together on the same platform and discuss with surprisingly little heat the possibilities of working out a comprehensive medical service. This must be read to be believed!

SINAI, N., *et al.* Panel Discussion on Medical Care. *Canad. Pub. Health J.* 40. 6:241 (June), 1949.

Lest the Pendulum Swing Too Far —It seems this man just can't write uninterestingly. Some who read "Baby and Child Care" may have assumed that that best of baby books was an inspired flash-in-the-pan. But since then we've had a continuing stream of highly readable papers. The latest is about the possibilities of going to foolish extremes in the new philosophy of flexibility in child care.

SPOCK, B. Chronic Resistance to Sleep in Infancy. *Pediatrics* 4, 1:89 (July), 1949.

Ptah-hotep and Walt Whitman—Don't you like, just once in a while to get away from "calculating profits—so much gain from so much reading" (stolen from Elizabeth Browning), and read a paper just for the fun of seeing how someone else does the trick of writing? If you do, this is your dish—garnished with some new quotations.

ZEMAN, F. D. The Medical Significance of Our Aging Population. *Pub. Health Nurs.* 41, 7:381 (July), 1949.

Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

IN her recently published volume, Margaret Bourke-White characterizes India as "halfway to freedom."[1] This description is particularly apt in the area of public health. As a civilization India is very old, but as a nation India is very young. To understand this awakening of the Indian nation is the key to an understanding of the varied aspects of Indian life, including that of health.

Until very recently public health has been a step-child of government in India.[2] Since the war and the acquisition of independence, however, there has occurred an intensification of interest in public health and the prevention of disease. It is in this connection that Miss Bourke-White's phrase is seen to be particularly apposite.

In various ways the situation in India represents a type of accelerated development. On the one hand, the problems that face Indian public health workers are similar to those in Western Europe at the onset of the Industrial Revolution; on the other, the means to deal with these problems are based on advanced scientific knowledge.

These facets are clearly revealed by examining a journal such as *People's Health* edited by A. V. Raman and published monthly at Madras. The purpose of this magazine is "to educate the lay public and the experts alike on all matters pertaining to the health of the people." In this respect it may be described as primarily a propaganda magazine, not unlike the *Journal of Public Health* published by Southwood Smith and his coworkers in the British public health movement of a century ago.

ENVIRONMENTAL HYGIENE

Considerable attention is being paid to environmental sanitation. In 1948, Rajkumari Amrit Kaur, Minister of Health for India appointed an Environmental Hygiene Committee.[3] The terms of reference for this committee were:

1. Investigation of the whole field of Environmental Hygiene with special reference to: (a) town and village planning; (b) housing, urban and rural; (c) water supply; (d) general sanitation, including conservation and drainage; (e) prevention of river and beach pollution; (f) control of insect vectors of disease; and (g) regulation of certain trades, industries, and occupations dangerous to health and offensive to the community.

2. The framing of a program of development for the consideration of the government.

In framing the program, it was recommended that the committee take into account the need for training an adequate number of technical personnel of various categories needed to carry out a modern program of environmental improvement. Furthermore, attention was called to the need for adequate financing, and to the varying resources of the Provinces which would have to be taken into account so that the program which is finally decided upon can be implemented on as uniform a basis as possible.

SECOND HEALTH MINISTERS' CONFERENCE

The major health problems of India may also be seen from the resolutions passed at the Second Health Ministers' Conference held at New Delhi on August 2, 1948.[4] Besides recommending the firm establishment of administrative coöperation between the central, provincial, and state agencies, the

Conference also concerned itself with industrial health, nutrition, tuberculosis, leprosy, the training of medical, nursing, and ancillary personnel, the establishment of an all-India medical register, rural medical aid, malaria control, improvement of the machinery for the registration of vital statistics, blindness in India, and finally health measures for refugees.

The Ministers recognized the importance of nutrition and at the same time the vastness of the Indian problem. They recommended that nutrition committees be set up by various governmental units and that these committees formulate and implement nutrition programs for the respective political and geographic units. Nutrition units should be considered integral parts of health departments, their main functions to determine the nature and extent of the nutrition problems in local areas as well as among specific groups in the population.

Emphasis was also placed on community feeding programs, particularly on the development of school feeding programs, the extension and improvement of factory canteens, and the utilization of maternity and child welfare centers for supplying supplementary food to pregnant women, nursing mothers, and children.

Education in nutrition should also be an important activity of health departments on all governmental levels.

The Conference recognized the magnitude, urgency, and importance of the leprosy problem in India, and recommended the adoption of the following measures:

1. The creation of provincial leprosy organizations to deal with the preventive and curative aspects of the problem;
2. The establishment of institutions for lepers;
3. The control of leprosy in groups of villages, especially those with high endemicity. Here emphasis is to be placed on the protection of children who constantly are exposed to infection;
4. The development of sound graduate and undergraduate training in leprology;
5. Organization of social assistance and welfare services for lepers, as well as the development of rehabilitation for persons who are crippled by the disease;
6. The employment of health education materials on a large scale;
7. To stimulate voluntary efforts in support of the official program.

Another grave problem to which attention was given was tuberculosis. In dealing with this subject, the development of a BCG vaccination program was recommended as an important part of the antituberculosis campaign.

In this brief review it is manifestly impossible to deal with each of the subjects dealt with at the Conference, but it is worth noting the progressive spirit with which they are considered.

BCG VACCINATION

The immensity of the tuberculosis problem in India may be gauged by the fact that there are approximately 500,000 deaths and 2,000,000 cases per year. In view of the manifold health problems with which it must deal, the Indian Government undertook to use BCG vaccination as one of the measures in its antituberculosis campaign. This action has aroused considerable controversy, especially on the part of those who insist that action be taken first to improve social and economic conditions.[5]

HOUSING THE MASSES

There is no denying that India has many other important problems. Next perhaps only to food, is the housing shortage.[6] One solution which has been suggested is prefabrication, but opinion seems to be sharply divided concerning suitability for Indian conditions. At any rate, it is understood that the government of India has agreed to a scheme for the manufacture of prefabricated houses, and a plant is soon

to be erected near Delhi for this purpose.[7]

INCREASED FOOD PRODUCTION

Another subject of intense topical interest is how to increase food production.[8] Sivaraman calls attention to the significance and interplay of various factors such as soils, manures, cultural practices, water supply, climatic conditions, pests, diseases and other environmental factors. The use of compost as manure is being actively discussed.[9, 10]

HEALTH EDUCATION

Mention has already been made of suggested educational measures in connection with specific problems such as leprosy. There is a clear recognition, however, of the need for a general public health education program. It is urged that proper steps be taken to insure a suitable school health education program, while at the same time similar proposals are put forth in the interests of adults.[11, 12]

MEDICAL AND DENTAL EDUCATION

Serious efforts are also being made to raise the standards of medical and dental education. As part of this endeavor one finds numerous articles calling attention to flaws and suggesting ways to remedy them.[13, 14]

PHYSICAL DEVELOPMENT OF JAPANESE CHILDREN

An interesting contrast to India is provided by the contributions contained in the *Japanese Medical Journal* which first appeared in April, 1948. Saito and Kawakami report on the recent physical development of Japanese children.[15] The authors state that during the war the height and weight development of urban school children was markedly disturbed, while rural children showed no effects. This difference is explained as due to better nutrition in the rural areas.

TREATMENT OF WHOOPING COUGH

Yaoi and Tagaya offer an interesting account of the use of *Hemophilus pertussis* vaccine combined with purified vaccinia lymph in handling epidemics of whooping cough. The vaccinia lymph is alleged to enhance the activity of the vaccine.[16]

INTRAPERITONEAL INOCULATION OF BCG VACCINE IN INFANTS

BCG vaccine has recently become popular in Japan. Yamaoka and Okayasu undertook the intraperitoneal inoculation of 125 infants and young children with the vaccine.[17] The subjects ranged in age from 1 month to over 2 years, but the majority were from 4 to 12 months of age.

The BCG vaccine was diluted with 5 ml. Ringers solution or 5 per cent glucose solution, and injected intraperitoneally. The minimum dose was 0.015 mg., the maximum 0.13 mg.; most of the children received 0.05 mg. (45 cases) and 0.1 mg. (50 cases).

Negative reactions changed to positive in 84.6 per cent of the cases in the 5th week and 100 per cent in the 7th week. The Mantoux local reaction was usually marked, showing, except in several atrophic infants, a well demarcated erythematous area with definite induration. Follow-up observation revealed no untoward effects. The authors conclude that the intraperitoneal inoculation of BCG vaccine is as effective as by other methods, and because of the ease of administration is especially indicated in infants. As to this conclusion, I am sure opinions will differ.

A NEW SALMONELLA TYPE

Hayakawa and Sen[18] report the finding of a new Salmonella type (*S. singapore*), isolated from a case of enteritis in Singapore. Its antigenic structure is VI. VII: K-enx, and shows marked phase dissociation.

IMMUNITY AGAINST DENGUE

Yaoi and Arakawa summarize their studies on dengue.[19] They report that they were able to give protection against dengue to human beings by means of an attenuated mouse virus. More than a month seemed to be necessary for the immunity to reach its maximum.

Ishii also reports successful results in producing immunity against dengue.[20] He used a formalized mouse virus vaccine. The length of immunity is said to be about 3 months.

It should be noted, of course, that Sabin and Schlesinger in 1945 had found virus modified by propagation in mice effective in producing immunity to dengue.

REFERENCES

1. Bourke-White, Margaret. *Halfway to Freedom,* New York, Simon and Schuster, 1949.

2. Balfour, Marshall C. Public Health Administration in the Far East, in Simmons, J. S. (ed.); *Public Health in the World Today,* Cambridge; Harvard University Press, 1949, p. 208.

3. Rajagopalachari, C. Environmental Hygiene Committee. A Message, *People's Health* 2:500-501, 1948.

4. Resolutions passed at the Second Health Minister's Conference. Coöperation between the Centre, Provinces and States, *People's Health* 2:595-607, 1948.

5. *People's Health,* Vol. III, Feb., 1949. The entire issue is devoted to the B.C.G. program. See also *People's Health* Vol. III (Mar.), 1949, pp. 266 ff.

6. Nambiar, K. K. The Problem of Housing the Masses, *People's Health* 3:61-66, 1948.

7. Chitale, L. M. Prefabrication, *People's Health* 3:21-23, 1948.

8. Sivaraman, M. S. Increased Food Production, *People's Health* 3:125-129, 1948.

9. Rao, B. Bhimasena. All About Compost Manure, *People's Health* 2:546-554, 1948.

10. George, P. K. Compost Manufacture at Lalur, Trichur Municipality, *People's Health* 3:306-309, 1949.

11. A Teacher. Health Education in Basic Education Program, *People's Health* 3:244-245, 1949.

12. Public Health Education, *People's Health* 2:509-514, 1948.

13. Thomson, J. Ford. What is Wrong with Indian Education? *People's Health 2:506-508, 1948.*

14. Tragedy of Dental Education in India, *Indian Dental Review* 18:50-52, 1949.

15. Saito, K., and Kowakami, R. Recent State of Physical Development of Japanese Children, *Japanese Medical Journal* 1:119 125, 1948.

16 Yaoi. H., and Tagaya, I. Treatment of Whooping Cough by Combined Vaccination with *H. pertussis* Vaccine and Purified Vaccinia Lymph, *Japanese Medical Journal* 1:140-143, 1948.

17. Yamaoka, Y., and Okayasu, K. The Intraperitoneal Inoculation of B.C.G. Vaccine in Infants, *Japanese Medical Journal* 1:198-199, 1948.

18 Hayakawa, K., and Sen, N. K. On a New Salmonella Type (*S. Singapore*), *Japanese Medical Journal* 1:292-294, 1948.

19. Yaoi, H., Arakawa, S. Studies on Dengue (Resume), *Japanese Medical Journal* 1:4-11, 1948.

20. Ishii, N. Studies in Dengue Fever. I. Studies on Dengue Virus and Immunity (1) and (2), *Japanese Medical Journal* 1:160-175, 228-237, 1948.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

WESTERN BRANCH A.P.H.A. 1950 MEETING

The Executive Committee of the Western Branch, American Public Health Association, has announced the choice of Portland, Ore., as the place for the 1950 Annual Meeting of the Branch, which will be held in the Masonic Auditorium Building. The dates for the meeting are May 30–June 1 and pre-convention meetings of five groups have been set for May 29. The Chairman of the Portland Regional Finance Committee is Fred Peterson, Commissioner of Finance and Health of Portland.

The Secretary of the Western Branch is Walter S. Mangold, School of Public Health, University of California, Berkeley 4.

NEW OFFICERS OF A.P.H.A. AFFILIATED SOCIETIES

Five Affiliated Societies of the Association have reported the following new officers elected at recent annual meetings.

Idaho Public Health Association—

President: Sister M. Alma Dolores, Idaho State Hospital Association, Boise

1st Vice-President: Wanda Lee Ward, Idaho Congress of Parents and Teachers, Pocatello

2nd Vice-President: R. L. White, M.D., Representative, Medical Society, Boise

3rd Vice-President: Helen Heyden Bailey, American Red Cross, Twin Falls

4th Vice-President: Joe Latimore, City Engineer, Coeur D'Alene

5th Vice-President: Ella Lee, R.N., School Nurse, Idaho Falls

Secretary: A. W. Klotz, State Department of Public Health, Boise

Treasurer: Frances Goodwin, Idaho Anti-Tuberculosis Association, Boise

Massachusetts Public Health Association—

President: Mary E. Spencer, Ph.D., Director of School Health, Malden School Department, Malden

1st Vice-President: Leon A. Bradley, Ph.D., Head, Department of Bacteriology and Public Health, University of Massachusetts, Amherst

2nd Vice-President: Arthur D. Weston, Director, Division of Sanitary Engineering, State Department of Public Health, Boston

Treasurer: Catherine Atwood, Bacteriologist-in-charge, Boston Health Department, Boston

Secretary: Solomon L. Skvirsky, M.D., Assistant Director, Division of Local Health Administration, State Department of Public Health, Boston

South Carolina Public Health Association—

President: Walter P. Boylston, Principal Sanitarian, South Carolina State Board of Health, Columbia

Vice-President: Lucia Murchison

President-elect: John R. Claussen, M.D., County Health Officer, Florence

Secretary: Carrie B. DuPriest, Principal Clerk, Division of Tuberculosis Control, State Board of Health, Columbia

Treasurer: Blanche R. Speed, R.N., District Supervising Nurse, State Board of Health, Columbia

Utah Public Health Association—

President: J. P. Kesler, M.D., Salt Lake City Board of Education, Salt Lake City

President-elect: Robert A. Hunt, State Board of Health, Salt Lake City

Vice-President: Bernice Moss, Ed.D., Department of Physical Education, University of Utah, Salt Lake City

Secretary: Joseph Carling, State Board of Health, Salt Lake City

Treasurer: N. W. Pickett, City Health Dept., Salt Lake City

Cuban Public Health Society—

President: Juan A. Cosculluela
1st Vice-President: Alberto Recio, M.D
2nd Vice-President: Pedro Nogueira, M.D.
3rd Vice-President: Juan A Roman, M D
Technical Director: Guillermo Lage, M D.
Sub-Technical Director: Pedro Gonzales, M D
Technical Secretary: Rafael Calvo, M.D
Vice-Technical Secretary: Aristides Fernandez M D

LAWRENCE M. FISHER APPOINTED ENGINEERING FIELD ASSOCIATE ON A. P. H. A. STAFF

The Executive Board of the American Public Health Association has appointed Lawrence M. Fisher of Garrett Park, Md., as Engineering Field Associate.

Mr. Fisher will conduct the program of the Engineering Section Project, a special activity of the Association commenced in 1946. The goal of the Project is to develop better administrative and personnel practices in the field of environmental sanitation. Other activities of the Project include stimulation of the use and study of the Association Sanitation Evaluation Schedules; research work in administrative procedures (see *A.J.P.H.* Sept., 1949, p. 1144); emphasis on the use of an adequate number of properly qualified engineers and sanitarians; development of academic training fitted to the needs of environmental sanitation workers; and recruitment of new personnel.

Mr. Fisher retired recently from the U. S. Public Health Service as Sanitary Engineer Director after more than 30 years of service. His public health career commenced in 1912 when he was associated with Victor G. Heiser, M.D., in Manila doing special work in the hygiene of housing. His duties with the Service included extra-cantonment work during World War I; direction of malaria control work in South Carolina, including a period as Acting State Sanitary Engineer; District Engineer in New York, Washington, and Chicago; and direction of shellfish sanitation. Most recently he was assigned to the Office of the Surgeon General where he served as a member of the Interstate Commission on the Potomac River Basin by Presidential appointment, and as Chairman of a Technical Advisory Board to the International Joint Commission. He has been a Fellow of the Association since 1927, and for several years was Chairman of the Engineering Section Committee on Shellfish Sanitation. He is the author of numerous technical papers and developed a *Manual of Recommended Practice on Shellfish Sanitation* for the shellfish industry. He holds a degree of B.S. in Sanitary Engineering and a C.E. degree from Pennsylvania State College and a D.P.H. from the University of Georgia.



LAWRENCE M. FISHER

TELLERS APPOINTED

In accordance with Article VII, Section 8, of the A.P.H.A. By-laws, providing for the appointment of Tellers by the President of the Association, Dr. Wilinsky has appointed the following Tellers to canvass the vote of the Fellowship on elective members of the Governing Council:

Chairman, Richard F. Boyd, M.D.
Leonard Greenburg, M.D.
Bosse B. Randle, R.N.

The Tellers met in New York City on October 4 and tabulated the returns on the first mail vote for ten elective Governing Councilors. They will report the results of the vote to the Governing Council at its meeting on October 24.

INDUSTRIAL HYGIENE SECTION APPOINTMENT

William G. Fredrick, Sc.D., Chairman, Industrial Hygiene Section, announces the appointment of H. F. Schulte, University of California, Box 1663, Los Alamos, N. M., as interim secretary for the Section. This appointment became necessary due to the resignation of Richard T. Page because of ill health..

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

Robert McColl Aldis, M.D., D.P.H., Huron County Health Unit, Clinton, Ontario, Canada, Medical Officer of Health

Alfred J. Aselmeyer, M.D., 120 Boylston St., FSA, Region I, Boston 16, Mass., Regional Medical Director, Federal Security Agency

Edward T. Blomquist, M.D., M.P.H., 2500 Que St., N.W., Washington, D. C., Asst. Chief, Division of Tuberculosis, P.H.S., Federal Security Agency.

Iwan Guicherit, M.D., M.P.H., Surinam Bauxite Co., Paramaribo, Surinam, Dutch Guiana, S. A., Medical Director, Moengo Hospital

Robert T. Hyde, M.D., P.O.B. 665, Atlantic Beach, Fla., Radiologist, Bureau of Tuberculosis Control, Florida State Board of Health, Acting in the capacity of Health Officer

Webster M. Moriarta, M.D., 61 Maple Ave., Saratoga Springs, N. Y., Health Officer, City of Saratoga Springs

Frank W. Mount, M.D., 132 Crane Ave., Royal Oak, Mich., Apprentice Epidemiologist, training, New York State Dept. of Health

Pierce D. Nelson, M.D., M.P.H., 3227 Atwood Ave., Madison 4, Wis., District Health Officer, State Dept. of Health

Lt. Col. James P. Pappas, M.C., Surgeon, Hdqs., Fort Devens, Mass.

Earl A. Rogers, M.D., M.P.H., 1635 S. 26th St., Lincoln 2, Neb., Director, Division of Tuberculosis Control, State Dept. of Health

Walter W. Seibly, M.D., 842 5th St., Clarkston, Wash., Asotin County Physician and Surgeon

James L. Wardlaw, M.D., Madison County Health Dept., Madison, Fla., Director, Madison-Taylor Health Dept.

Laboratory Section

Kenneth E. Anderson, Ph.D., St. Bonaventure College, St. Bonaventure, N. Y., Head, Dept. of Biology

Vern Bolin, M.S., Univ. of Utah, Dept. of Pediatrics, Salt Lake City, Utah, Research Assoc., School of Medicine

Hilfred N. Bossak, B.S., U. S. Marine Hospital, V.D. Research Laboratory, Staten Island 4, N. Y., Serologist, P.H.S., Federal Security Agency

Dan C. Dickinson, 1920 Marengo St., Los Angeles, Calif., Laboratory Instructor, California College of Mortuary Science

Julia M. Flynt, B.S., 5166 Covington Road, Rt. 2, Decatur, Ga., Laboratory Technician, Georgia Dept. of Public Health

Onofre Garcia, M.D., Quezon Institute, Quezon City, Manila, Philippines, Pathologist

Lee E. Gordon, M.S., Ohio State Univ., Dept. of Bacteriology, Columbus 10, Ohio, Instructor

Fordyce R. Heilman, M.D., Ph.D., Mayo Clinic, Rochester, Minn., Consulting Physician and Head of Section on Bacteriology

Brigida Herrnstadt, B.A., Apartado Aereo 4707, Bogota, Colombia, S. A.

Marian B. Pierce, 2007 Wilshire Blvd., Los

Angeles 5,, Calif., Bacteriologist and Co-director, L. F. Pierce Laboratories

Donald E. Shay, Ph.D., 32 S. Green St., Baltimore 1, Md., Professor and Head, Dept. of Bacteriology, Univ. of Maryland

Frederick D. Sisler, Ph.D., Scripps Institution of Oceanography, La Jolla, Calif., Research Assoc.

John W. Spanyer, Jr., M.S., 1908 Howard St., Louisville, Ky., Asst. Technical Director, Brown-Forman Distillers Corp.

Diego B. Gonzalez-Teran, M.D., Frontera 22, Mexico, D.F., Mexico, Bacteriologist, Laboratorio Medico

Fanny B. Warnock, 4916 West Huron St., Chicago 44, Ill., Head, Dept. of Bacteriology, Norwegian American Hospital

Joseph W. Whalen, 1037 West Michigan, Battle Creek, Mich., Bacteriologist and Biochemist, Arthur S. Kimball Sanatorium and Calhoun County Health Dept.

Vital Statistics Section

Mary M. Coston, 967 Juniper St., N.E., Atlanta 5, Ga., Supervisor, Statistical Clerical Unit, Communicable Disease Center, P.H.S., Federal Security Agency

Vivian P. Dubinick, P.O.B. 901, Juneau, Alaska, Chief, Records and Statistics, Bureau of Vital Statistics, Alaska Dept. of Health

R. L. Ellis, Box 2124, Miami Beach 40, Fla., Interested Citizen

Leonard W. Hole, 1276 Richardson St., Victoria, B.C., Canada, Statistician, Division of Vital Statistics, British Columbia Government.

Carl E. Hopkins, Ph.D., Univ. of Oregon, Medical School, Portland, Ore., Assoc. Professor of Public Health and Preventive Medicine

Evelyn O. Keener, P. O. Box 229, Columbus, Ga., Secy., Dept. of Health

Stanley W. Laird, 5070 Wise Way, Chamblee, Ga., Survey Statistician, Communicable Disease Center, P.H.S., Federal Security Agency

Margaret F. McKiever, 6500 Luzon Ave., N.W., Washington, D. C., Statistician (Biometrician), P.H.S., Federal Security Agency

Dorothy E. Rogers, Reporting and Analysis Section, Division of Tuberculosis, P.H.S., Federal Security Agency, Washington, D. C., Health Program Specialist

M. Loyola Voelker, 5642 Abner Ave., C., Baltimore, Md., Director, Medical Record Library, U. S. Marine Hospital

Engineering Section

Henry W. Harper, III, D.V.M., 2801 S. Dort Highway, Flint, Mich., Veterinarian, Flint Health Dept.

John H. McCutchen, 606 Dix Road, Jefferson City, Mo., Supervisor, Bureau of Food and Drugs, Dept. of Health and Welfare

Robert M. Reese, 1523 N. 16th St., Philadelphia 21, Pa., Director, Sanitation Division, Alex. C. Fergusson Co.

Ellis A. Tarlton, M.S., 34 Pleasant St., Danbury, Conn., City Chemist, Danbury Water Dept.

L. O. Williams, M.S., 1901 Cheyenne Place, Cheyenne, Wyo., Director, Division of Public Health Engineering and Sanitation, State Dept. of Public Health

Industrial Hygiene Section

Ronald F. Buchan, M.D., C.M., 213 Washington St., Newark, N. J., Director, Employee Health, Prudential Insurance Company of America

Lloyd D. Utter, 1353 Columbia Rd., Berkeley, Mich., Director, Industrial Health and Safety Division, Social Security Dept., UAW-CIO

Food and Nutrition Section

Marjorie Cantoni, 1357 Washington St., Nutrition Center, West Newton 65, Mass., Nutritionist-in-charge, Newton Nutrition Center

Dora M. Dabney, M.S., 83 E. Xenia St., Jamestown, Ohio, Nutrition Consultant, Ohio Dept. of Health

Minna L. Gutsch, M.S., Wisconsin State Board of Health, Madison, Wis., Nutritionist

Trandailer Jones, B-14 Bourne Field, Charlotte Amalie, Virgin Islands, Nutritionist, Dept. of Health

Edwin Ludewig, 840 Grand Concourse, New York, N. Y., Director, Bureau of Foods and Drugs, New York City Health Dept.

Eleanor A. Matsumoto, 1727 Apaki St., Honolulu 17, Hawaii, Nutritionist, Dept. of Health

Wilma F. Robinson, 222 South 4th St., Springfield, Ill., Consultant Dietitian, Illinois Dept. of Public Health

Wallace R. Roy, Ph.D., Vacuum Foods Corp., Plymouth, Fla., Chief Chemist

Theresa McDuffie Samuels, M.A., 1931½ Highland Place, Indianapolis, Ind., Public Health Nutritionist, Herman G. Morgan Health Center

Marjorie L. Scott, M.Sc., 1201 Connecticut Ave., N.W., Washington, D. C., Nutrition Officer, Nutrition Division, United Nations Food and Agriculture Organization

Ardyce I. Sorensen, Box 177, Wailuku, Maui, T. Hawaii, Nutritionist and Executive Secretary, Maui County Tuberculosis Assn.

Sarah F. Welsh, 1125 Linden Ave., Baltimore 3, Md., Director of Home Economics Dept., Western Maryland Dairy

Maternal and Child Health Section

Nathan P. Eisenberg, M.D., 133-21 228th St., Laurelton, L. I., N. Y., Medical Inspector, Child Hygiene, New York City Dept. of Health

Lillian Marks, M.D., 1270 Bryden Rd., Columbus, Ohio, Medical Director Services for Crippled Children, Ohio Dept. of Public Welfare

Saul J. Robinson, M.D., 2107 Van Ness, San Francisco, Calif., Consultant Cardiologist, San Francisco Dept. of Health

Hyman Soifer, M.D., 105-05 69th Ave., Forest Hills, L. I., N. Y., Physician, New York City Dept. of Health, (Child Health Station)

Public Health Education Section

Festus C. Bandy, M.D., 300 Court St., Sault Ste. Marie, Mich., Roentgenologist, Sault Polyclinic.

W. Gordon Bunch, M.S.P.H., Charleston County Health Dept., Charleston, S. C., Health Educator

Joseph Locke, Box 450, Whitehorse, Y. T., Canada, Administrator and Chief Inspector, Dept. of Health and Welfare

Anna M. Obert, M.S., 175 N. Main, Salt Lake City, Utah, Health Educator, P.H.S., Federal Security Agency

Samuel Peskin, M.S., 55 Park Terrace East, New York 34, N. Y., Research Fellow, National Health Council

Trent S. Russell, M.A., M.P.H., 199 Waverly St., Buffalo, N. Y., Public Health Educator, New York State Dept. of Health

Katherine Steinbicker, M.P.H., 115-N. 19th St., Wheeling, W. Va.

Alice J. Witt, 78 Park Ave., Worcester, Mass., Exec. Director, Northern Worcester County Public Health Assn.

Public Health Nursing Section

Mildred B. Burkley, 328 Grant St., Syracuse, N. Y., Asst. Supervising Public Health Nurse, New York State Dept. of Health

Katherine M. Burns, 201 Hawthorne St., Hartford, Conn., Public Health Nursing Supervisor, Hartford Health Dept.

Marion M. Campbell, 25 Pierrepont St., Brooklyn 2, N. Y., Territorial Supervisor, Bureau of Nursing, New York State, Metropolitan Life Insurance Co.

Elenore C. Carlson, Public Health and Welfare, FEC, APO 500, Postmaster, San Francisco, Calif., Director, Nursing Education

Wilma H. McCafferty, R.N., Rt. 2, Box 601-A, Pensacola, Fla., Supervisor of Nurses, Escambia County Health Dept.

Maria Rosa S. Pinheiro, M.A., 440 Ave. Dr. Ademar de Barros, Sao Paulo, Brazil, S. A., Asst. Director, School of Nursing, Univ. of Sao Paulo

Ruth E. Rokahr, R.N., 1006 Paul Drive, Rockville, Md., Supervisor, Public Health Nurse, Montgomery County Health Dept.

Laura Small, City Hall, Waupun, Wis., City Nurse, City Health Dept.

Mary Susich, R.N., M.P.H., 651 Brentwood Blvd., Clayton 5, Mo., Director of Nurses, St. Louis County Health Dept.

M. Imogene Yarbrough, R.N., 1550 E. Indian School Road, Phoenix, Ariz., Regional Consultant in Nursing, U. S. Indian Affairs

Epidemiology Section

Paul M. Duffy, M.D., 1931 Atlantic St., Dallas, Tex., Medical Officer, Diabetes Demonstration Unit, P.H.S.

Harry Rubin, D.V.M., Rt. 3, Box 436, Montgomery, Ala., Asst. Officer in Charge, Rabies Control Studio, Virus Laboratory, Communicable Disease Control, P.H.S.

Guillermo E. Samame, M.D., M.P.H., 2001 Connecticut Ave., N.W., Washington, D. C., V.D. Consultant, Pan American Sanitary Bureau

School Health Section

John J. Drucker, M.D., 75 Ascan Ave., Forest Hills, L. I., N. Y., Physician, Private Practice

Raymond E. Duke, M.D., 2638 W. River Road, Minneapolis 6, Minn., Student, School of Public Health, Univ. of Minnesota

Waring J. Fitch, M.A., 1243 S. W. 137th St., Seattle 66, Wash., Head, Conservation of Hearing Section, State of Washington, Dept. of Health

Mary E. Hurley, R.N., 66 Third St., City Hall Annex, Fall River, Mass., Acting Supervisor of Nurses, Board of Health

Dental Health Section

Bruce D. Forsyth, D.D.S., 5100 Western Ave., N. W., Washington, D. C., Asst. Surgeon General, Chief, Division of Dentistry, P.H.S.

Robert S. Langstroth, D.D.S., D.D.P.H., Dept. of Health, Fredericton, N. B., Canada, Director of Dental Health

Medical Care Section

Salah Eldin M. Attia, M.B., M.P.H., 615 N. Wolfe St., Baltimore, Md., Asst. Director, Giza Province Health Dept., Egypt

Josephine C. Barbour, 41 Bowdoin St., Cambridge, Mass., Chief of Social Service, Massachusetts General Hospital

Sterling B. Brinkley, M.D., 235 Franklin St., Johnstown, Pa., Area Medical Administrator, Welfare and Retirement Fund, U.M.W.A.

Albert S. Brussell, M.D., 2352 W. Mulberry, San Antonio, Tex., Chief Medical Officer, Veterans Administration

Joseph N. Hamilton, 805 Midwest Bldg., Oklahoma City, Okla., Director, Oklahoma Commission for Crippled Children

John C. McDougall, 2236 Washington Ave., Silver Spring, Md., Chief, Administrative Methods Unit, Federal Security Agency, S.S.A., Children's Bureau

W. E. Noblin, Jr., M.D., 2548 North State St., Jackson, Miss., Director, Crippled Children's Service, State Dept. of Education

Colonel Otis B. Schreuder, M.C., Surgeons Office, Hqs. AMC, Wright-Patterson AFB, Dayton, Ohio, Staff Surgeon, Headquarters, Air Material Command, U. S. Air Force

Unaffiliated

James V. Carter, B.S., 316 W. 6th Ave., Cheyenne, Wyo., Medical Student, Jefferson Medical College, Philadelphia, Pa.

Clemens W. Gaines, 2411 N. Charles St., Baltimore 18, Md., Acting Chief, Division of Personnel and Accounts, Maryland State Dept. of Health

Kent S. Littig, M.S., 439 Ansley St., Decatur, Ga., Sanitarian(R), P.H.S., Federal Security Agency

Ernest E. Rothe, M.D., 252 W. 73rd St., New York 23, N. Y., Physician, Medical Lecturer

Mindel C. Sheps, M.D., Box 877, Chapel Hill, N. C., Student, Univ. of North Carolina

Barbara L. Tower, Massachusetts Dept. of Public Health, Boston 33, Mass., Accountant

Robert B. Watson, M.D., M.P.H., Caixa Postal 425, Macau (via Hong Kong) China, Acting Director, Far Eastern Region, International Health Division, Rockefeller Foundation

APRIL, 1949, JOURNALS WANTED

Due to an unusually heavy distribution of March and April, 1949, issues of the *American Journal of Public Health*, the headquarters office finds itself embarrassingly short of these. It will be appreciated if members who can spare these *Journals* will send them collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19.

OPPORTUNITIES IN ILLINOIS

The following opportunities are available in Illinois:

Public Health Physicians as Assistant Chiefs in the Divisions of Communicable Diseases, Venereal Disease Control, and Local Health Administration. Civil Service; good retirement plan.

Public Health Physicians: for District Offices of State Health Department; excellent civil service and retirement system.

Public Health Training Center: Experienced personnel—3 public health nurses; 2 sanitary engineers; 1 health educator, needed for Training Center just being started. Good salary.

For information on the above opportunities write to: Roland R. Cross, M.D., Director, State Department of Public Health, Springfield, Ill.

A.P.H.A. membership application blank on page XXIX

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Public Health Nurses for staff positions. Generalized program, rural and urban areas. Salary $3,108–$3,838, mileage 7¢; 5 day week, merit system, annual vacation with pay, sick leave and attractive retirement system. Excellent opportunities for advancement. Write: Departmental Personnel Officer, Los Angeles, City Health Department, 116 Temple Street, Los Angeles 12, Calif.

Sanitarians—Good salary and travel allowance; liberal sick leave and vacation; excellent program. Write: Director, McLean County Health Department, 1009 North Park Street, Bloomington, Ill.

District Health Officer—physician for tri-county rural district, population 60,000. Salary $5,640 to $6,240 depending on qualifications. Travel allowance 7¢. Expanding general public health program, particularly school work and tuberculosis control. Write: **Box A-70**, Employment Service, A.P.H.A.

Sanitarian—generalized program; salary range $2,400–$3,600 depending on training and experience; adequate travel allowance. Write: Director, City-County Health Unit, Colorado Springs, Colo.

Medical Director — Quadri - County Health Department, Headquarters at Golconda, Ill. Applicant must meet the minimum requirements of the Illinois Department of Public Health. Salary $7,200–$8,400 plus 7¢ mileage; 40 hour week. Rural experience necessary. Write: Mrs. Paul Trovillion, Secretary County Board of Health, Brownfield, Ill., giving age, experience, source of M.P.H., and recent photo.

Public Health Nurse — Quadri - County Health Department, headquarters at Golconda, Ill. Minimum requirements—completion of approved program of study in public health nursing. Salary $2,400–$3,036 plus 7¢ mileage; 40 hour week. Write: Mrs. Paul Trovillion, Secretary County Board of Health, Brownfield, Ill.

Public Health Nursing Supervisor for staff of 10 nurses in generalized program in City Health Department. Salary range $278–$333. Three staff nurses — salary range $266–$319. Write: Mrs. Mary Ann Hawthorne, Director, Public Health Nursing, City of Sacramento, Calif.

Superintendent for Convalescent Home. A 50 bed home employing graduate nurses, practical nurses, clerical staff, kitchen staff and maintenance personnel. Professional personnel will include a physical and occupation therapist, advisory medical staff and operating board of managers. Experience and maturity desired. Located near Lexington, Ky. Salary commensurate with ability, training, and experience. Quarters provided if desired. Write: National Personnel Registry and Employment Service, National Society for Crippled Children and Adults, 11 S. La Salle St., Chicago 3, Ill.

Public Health Nursing Supervisor for voluntary agency—congenial eight nurse staff. Minimum requirements—completion of approved program of study in Public Health Nursing; experience in a Visiting Nurse Association. Salary open, four weeks paid vacation annually, also two weeks sick leave. Car necessary. Write: Mary Luvisi, R.N., Director, Visiting Nurse Association, 1 Broadcast Place, Jacksonville, Fla.

Staff Nurses and Director of Nursing: Bi-county unit, small territory and population. Director, $350 to $375; two nurses, $275 to $310 depending on experience and qualifications. Cars furnished for field nurses. Write: Health Officer, Sutter-Yuba Health Department, 309 C Street, Marysville, Calif.

Public Health Nurse to fill vacancy in School Health Department. Minimum requirements—1 year of study in public health nursing. Base salary—$2,600 to $2,900, additional salary above base depends upon qualifications. 5 day week, retirement plan; 15 days sick leave; 15 days vacation. Write: Claire A. Christman, M.D., Director of School Health Department, 1800 N. Edison St., Arlington, Va.

Qualified Dental Hygienist interested in public health work at a salary of $235 per month, with a $50 per month car allowance. Sick and annual and retirement benefits. Possession of a license or eligi-

bility for a license to practise dental hygiene is necessary. Write: Louisiana State Department of Health, Personnel Section, Civil Courts Bldg., Royal Street, New Orleans 7, La.

Senior Industrial Hygiene Engineer—Minimum of 3 years' experience in industrial hygiene engineering. College graduate in engineering, preferably supplemented by graduate work in industrial hygiene engineering. Salary $4,440 to start, advancing to $5,400. $7.50 per diem for travel plus 6¢ a mile for use of car. Civil Service status, vacation, sick leave. Write: H. M Erickson, M.D., State Health Officer, Oregon State Board of Health, 1022 S. W., 11th Avenue, Portland, Ore.

Supervisor of Public Health Nurses for County Health Department with generalized public health nursing program including three Crippled Children's Clinics and five Otological Clinics each year. Three weeks' study leave every other year, 15 days vacation and 12 days sick leave each year. State Retirement System. Qualifications: Bachelor's degree, Public Health Nursing credential with course of 8 months in supervisory training and at least one year's experience in public health nursing on a generalized public health program. Opening salary $300 with increase to $329. Must own car. 8¢ per mile allowed. Write: R. O. Ingham, M.D., Health Officer, Santa Cruz County, Department of Public Health, Santa Cruz, Calif.

Public Health Nurse to work with six other public health nurses in a generalized public health program. Qualifications: A Bachelor's degree with a Public Health Nurse's certificate which will be equivalent to a California certification. Beginning salary $250 with increases according to merit to $300. Automobile is required, 8¢ mileage is allowed. Fifteen days vacation and 12 days sick leave annually and a State Retirement System is in force. Write: R. O. Ingham, M.D., Health Officer, Santa Cruz County, Department of Public Health, Santa Cruz, Calif.

Medical Director, Division of Maternal and Child Health. Public health training and pediatric experience desirable. Salary $7,000 plus travel allowance. Write: W. B. Prothro, M.D., City-County Health Department, Kalamazoo, Mich.

Qualified Professional Man in Division of Sanitary Engineering and Sanitation. Requirements: graduation from accredited four year college or university with bachelor's degree in engineering, physics, chemistry, geology, biology, bacteriology, entomology or parasitology plus two years of experience, one of which must have been in supervisory or administrative capacity. Salary range—$4,000 to $5,020. Write: Merit System Supervisor, Box 939, Santa Fe, N. M.

Public Health Nurses to fill vacancies in Health Department. Generalized Service including maternal and child care, school health, and communicable disease control. Immediate appointment on provisional basis. Salary range $2,520–$2,880. Vacation; sick leave; In-Service Training. Write: Director Public Health Nursing, State Board of Health, State Health Bldg., Little Rock, Ark.

Qualified Sanitarian: for Shelby County, Illinois, serving 26,000 rural population. New position for the improvement of sanitation in newly organized Bicounty Health Unit. Salary, $3,000 plus liberal travel. Write: Fred O. Tonney, M.D., Medical Director, 206 North Morgan St., Shelbyville, Ill.

Public Health Nurse for generalized program in a City-County Health Department. Salary based upon training and experience. Public Health Nurse I, $2,900 and Public Health Nurse II, $3,200, plus travel. Write: Kalamazoo Health Department, Kalamazoo, Mich.

County Health Officers—Recently increased salary plus travel allowance of 7¢ per mile for Medical Directors of our county health units. Several desirable Kentucky counties open. Advancement opportunities plus training program for right men or women. Write: Tracy Jones, M.D., Director, Division of County Health Work, State Department of Health, 620 S. Third St., Louisville 2, Ky.

Assistant Professor of Microbiology interested in parasitology; salary $4,200–$4,400. Midwestern medical school. Position to be filled not later than February 1, 1950. Write: Box: A-71, Employment Service, A.P.H.A.

Qualified Public Health Nurse for generalized program in District Health Department. Liberal salary, adequate travel allowance, vacation, sick leave, and in-service training program. Write: District Health Department, Coldwater, Mich.

A number of part-time positions are open as Dental Operators in the Cincinnati Schools. Minimum salary, $3,954, two weeks' vacation with pay, retirement. Write: Oral Hygiene Services, Fourth and Ludlow Streets, Cincinnati, Ohio

Dental Hygienist for City Health Department. Write: Garland Weidner, M.D., Health Officer, City Health Department, La Crosse, Wis.

Qualified public health nurses having, or eligible for, California registration and certificate in Public Health Nursing. Must own and drive car and be willing to live in city. Generalized public health program. City of 100,000. Salary $265–$311. Send full particulars and recent photograph to: City Manager, Richmond, Calif.

Qualified Public Health Officers. Salary $5,000–$8,000 per year, plus automobile allowance. Merit System rights and privileges; vacation; sick leave; retirement provisions under certain conditions. Write: Dr. George W. Cox, State Health Officer, Austin, Tex.

POSITIONS WANTED

Non-Medical Administrator, interested in health education—Male (Ph.G. 1921). Experienced in organization, administration, public relations, fund raising, epidemic aid, convalescent care at state, regional, and national levels. Available immediately for position in similar capacity with voluntary or private agency. Salary $8,000 to $10,000 depending on location. Prefer West or Southwest. Write: Box HE-14, Employment Service, A.P.H.A.

Bacteriologist—Male; 26; recent M.S. degree, University of Chicago; excellent background in immunology, parasitology, and food bacteriology. Desires position in research; any location. Write: Box L-12, Employment Service, A.P.H.A.

Veterinarian—age 32, experienced in public health food inspection and sanitation control work, desires position with public health agency. Write: Box V-9, Employment Service, A.P.H.A.

Dentist, male, 30 years old, M.P.H.; 5 years' clinical and public health experience (civilian and U. S. Army). Interested in administrative or part-time clinical opening in U. S. or overseas. Write: Box D-4, Employment Service, A.P.H.A.

Nutritionist or Home Economist—15 years' experience as head dietician in hospitals. B.S. degree. Write: Box N-2, Employment Service, A.P.H.A.

Dentist, 1939 graduate, desires clinical or administrative position with health department or school. Appointment anywhere in the United States. Write: Box D-5, Employment Service, A.P.H.A.

Industrial Hygienist—15 years' experience in wide variety of industries. Excellent training in biological and chemical sciences. Familiar with detection and control of common industrial health hazards. Presently employed but seeking position with greater challenge and opportunity. Write: Box I-H-3, Employment Service, A.P.H.A.

Non-Medical Administrator, B.A., M.P.H., age 26, ex-serviceman, single. Presently employed in the field of preventive medicine and familiar with the different aspects of public health. Write: Box C-13, Employment Service, A.P.H.A.

Health Educator, woman, qualified in community and school health education: B.S. and M.A. degrees in Health and Physical Education, plus graduate workshop in Health Education and business school training. Teaching experience includes college and high school health education. Community experience includes voluntary community agency position and coördinator for school-community health program. Interested in school or community health education work. Write: Box HE-15, Employment Service, A.P.H.A.

United States Public Health Service Announces Regular Corps Examinations for Nutritionists

Examinations for Sanitarian Officers (Nutritionist) in the U. S. Public Health Service Regular Commissioned Corps will be held November 14–16 at various points throughout the U. S. Completed applications must be in the Washington Office by October 17.

Appointments are permanent and provide opportunities for career service in hospital nutrition and public health. Benefits include periodic pay raises and promotions; liberal retirement provision; medical care; annual and sick leave.

Appointments will be made in the grade of Senior Assistant Sanitarian (equivalent to Army rank of Captain). Entrance pay is $4,489 (with dependents). Applicants must have a Master's Degree with a major in nutrition from an approved college; approved hospital dietetic internship; 10 years' post-high school training and experience.

For application forms and additional information, write to: Surgeon General, U. S. Public Health Service, Washington 25, D. C., Attention: Division of Commissioned Officers.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

PUBLIC HEALTH PHYSICIANS FOR FOLLOWING: (a) To serve as administrative chief of all public health activities; county population 350,000; headquarters in university and resort city of 185,000; $8,500. (b) To direct university health service; well equipped modern department; student enrollment 4,000, faculty, 250; Middle West. (c) To assist in municipal health department; university town of 150,000; Pacific Coast. (d) To direct health program; public school system; approximately 12,000 elementary pupils; term runs 40 weeks; winter resort town of 165,000; Southwest. (e) To direct division of geriatrics and adult hygiene; metropolitan health department. Minimum $8,500; Midwest. (f) To join staff of national health organization; administrative experience required; $8,000–$10,000; East. (g) Woman physician; student health appointment; young women's college; East. PH10-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Health director; industrial health service; man preferred; tuberculosis experience desirable; East. (b) Sanitary engineer thoroughly experienced in fields of malaria and insect control; key position; South America; $7,000. (c) Nutritionist; university appointment; duties consist of serving as consultant; Middle West. (d) Health educator; association of voluntary health agencies; new development; town of 40,000, New England. (e) Sanitary engineer or sanitarian; duties: to supervise operation of all phases of local or statewide malaria control, rodent control, etc.; West. (f) Health educator and, also, health education consultant; state department of health; interesting opportunities. (g) Sanitary engineers; county health department; $4,000–$4,500; Midwest. PH10-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH NURSES FOR FOLLOWING: (a) To direct generalized public health program, county department; headquarters in college town, Northern California; $4,200–$4,800. (b) To direct public health nursing program, eastern university. (c) To supervise program, planned parenthood center, Midwestern metropolis. (d) To direct program, public school system; residential town, 30,000, short distance, university medical center; Middle West. (e) To direct student health service, women's campus, liberal arts college; well staffed department; Middle West. (f) To supervise generalized public health nursing program, children's clinics; California resort town, 25,000, located on Pacific Ocean. (g) College nurse; college preparatory school; resident and day students; university center; East. (h) Staff appointments, state department; headquarters, university medical center; $2,700–$3,900. (i) Industrial hygiene nurse; duties consist of elevating standard of nursing in industry, surveys, serving as consultant; considerable traveling; East. (j) Apprenticeship, public health nursing; salary during training period, $216; city health Department; Widwest. PH10-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Health educator; Master's degree, Public Health, Eastern university; four years, health educator, county health department; three years, health coordinator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Physician distinguished in the field of public health medicine is available; M.S., M.D., D.P.H. degrees, leading schools; enviable career of successful experience in academic and administrative public health work; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health dentist; D.D.S., M.S.D. (Children's Dentistry), M.P.H. (Public Health); several years, teaching experience; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse is available for executive position; B.S. in Public Health nursing; M.A. in Administration; ED.D. Nursing Education; seven years, teaching her specialty; four years, public health nursing administration; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse administrator; A.B., M.P.H., Minnesota; several years, school nurse; five years, supervisor, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S., Civil Engineering; several years, sanitary engineer, tropics; past four years, chief, engineering division, county department of health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

COURT HOLDS UNITED STATES RESPONSIBLE IN TYPHUS DEATH

The Federal District Court in Baltimore was ordered on August 2 by the United States Court of Appeals in Richmond, Va., to assess damages against the United States Government for the death from endemic typhus fever of a tenant in a Baltimore defense housing project which had been operated by the Federal Public Housing Authority.

According to the press, in an opinion which reversed the trial court in part, the U. S. Court of Appeals ruled that the tenant had died January 23, 1947, from the bite of a flea in a rat-infested dwelling which the Housing Authority should have cleaned up. According to the appeals court opinion the evidence established conclusively that the field supervisor of the Public Housing Authority who inspected the premises monthly was notified in November, 1946, not merely of the danger of rat infestation in general but also of the presence of endemic typhus on the premises and of the particular role which rats play in spreading the disease. According to the decision, the United States failed to act in spite of the foreknowledge of the very danger which ultimately resulted in the death of the tenant.

The suit was brought by the State of Maryland on behalf of the widow of the tenant against the owners and operators, including the Federal Public Housing Authority. The house in which the tenant lived was one of 22 three-story row buildings, 125 years old, located in the 600 and 700 blocks of North Calvert Street in Baltimore. These were rented in June, 1943, by the Federal Public Housing Authority for a nominal rental to aid in the pressing need for housing for defense workers. Each of the houses was divided into six apartments and the total of 96 dwelling units actually housed as many as 328 persons who had access to the basements or cellars where they did their laundry and deposited their garbage.

According to the opinion, during the period of government control, the wooden floors of the cellars were honeycombed with rat burrows and the garbage from the apartments frequently overflowed the dilapidated, uncovered containers furnished by the landlord to the tenants and spilled upon the floor. The Baltimore City Health authorities warned the government of the condition of the apartments March 15, 1944, but more than two years elapsed before steps were taken to fill the rat holes and dust the burrows with DDT. The opinion said that the work was done in an unsatisfactory manner, despite prodding from the City Health Department, with the result that the rats still had harborage in the floors and walls. A total of 6 cases of typhus was reported at the City Health Department from this apartment house area prior to January 1, 1947, and the government sub-leased the premises on that date, which action freed the City Health Department to take charge of the situation. On January 20, 1947, a detailed directive outlining the necessary steps for effective ratproofing was issued and the work was done in about two months, since which time no cases of typhus fever have been reported from the area.

This is believed to be the first time that a housing authority has been held responsible for a disease caused by deficient environmental sanitation. It is expected that the decision will be appealed to the United States Supreme Court by the Federal Public Housing

Authority. The final decision will affect, to a considerable extent, the authority which local health departments have in the control of environmental sanitation.

MASSACHUSETTS HEALTH UNIT LAW

Governor Dever recently signed the Union Health Bill which enables the towns and cities of Massachusetts to form union health departments. The Act provides that two or more cities or towns may form a union health department to be administered by a full-time director of health who must be either a physician registered or eligible for registration to practise medicine in the Commonwealth, or a lay person with specialized training and experience in public health. The State Health Department sets minimum qualifications for union health department directors and passes upon the qualifications of each candidate for appointment to such position.

The law further provides that if within ten years municipalities having a population of less than 35,000 do not voluntarily become members of health unions, the State Department of Public Health shall, after a public hearing, include such municipalities in existing or new unions, unless such communities are providing minimum health services as defined by the State Public Health Council. No constituent city or town of a health union may withdraw from a union until it has been a member for at least five years, nor without provision for its inclusion, subject to the approval of the State Health Department, in a separate or another union.

"This is, without doubt, the most important health legislation that has been passed since the establishment of the State Department of Public Health in 1869," commented Vlado A. Getting, M.D., Commissioner of Public Health, on passage of this law. He said further that the law opens the door for the people of Massachusetts to have the public health protection which is their right; small rural communities can have the same advantages already provided in the larger cities. Services such as immunization of preschool children, well child conferences, prenatal advice to mothers, inspection of private water supplies and sewage disposal, chest x-rays, and prevention against the spread of communicable diseases can reach every home in the Commonwealth.

KENTUCKY CONTRIBUTES TO PUBLIC HEALTH LAW

On December 17, 1948, the highest court of Kentucky, the Court of Appeals, handed down three decisions of considerable significance to public health administration in that state and elsewhere. One of these, Louisville and Jefferson County Board of Health v. Steinfeld, 215 S.W.2d 1011, is also of special interest to members of the American Public Health Association, since it upholds the right of a city-county board of health to reimburse one of its executives for expenses incurred in attending a meeting of the Southern Branch of the Association outside the state. Although the Kentucky statutes contain no specific authorization for the payment of such convention expenses, the Court stated that this power arises from necessary implication in the health laws, particularly those sections providing for research, and the gathering of statistics and information which is useful in the performance of official duties. This court sagely pointed out that it is a matter of common knowledge that hearing an eminent specialist lecture, engaging him in conversation thereafter, and seeing him demonstrate his theories is much more enlightening than reading about it in a journal.

In the second case, Nichols, et al., v. Marks, et al., 215 S.W.2d 1000, it was held that a county health officer in Kentucky is not an officer but an employee, and thus may receive a salary in excess of $5,000 a year, the limit placed upon

the salaries of public officers by the state constitution. The county health officer is an employee because he is appointed by a board, reports to it, and is supervised by it, whereas a position is a public office only when it is created by law, is of a continuing nature, and involves some exercise of the sovereign power of the state. In a dissenting opinion the Chief Justice ironically remarked that it will not be long before Kentucky has a dearth of officers and a plethora of employees if the court continues to circumvent the state constitution in this respect.

The third case, Mosier v. Barren County Board of Health, 215 S.W.2d 967, sustains the right of a board of health to promulgate and enforce rules for the compulsory vaccination of all school children. The regulation was contested by two chiropractors who claimed, among other things, that their religious and conscientious beliefs were opposed to vaccination against smallpox. The Court curtly dismissed this contention with the statement that the law does not permit religious beliefs to jeopardize the lives, safety, or health of the general public.

SYPHILIS CASE FINDING PROGRAM

Twenty-eight of the 48 states, representing two-thirds of the country's population, have joined with the U. S. Public Health Service in an intensive campaign to find and treat the 1,000,000 persons who "have syphilis and don't know it." June was devoted to ground work; July and August to the effort to discover and treat every case of syphilis in the more than 200 communities participating in the program. State and local health departments, voluntary groups, civic organizations, and medical societies have joined in the all out drive.

The Public Health Service provided funds and technical assistance to local health departments for the campaign, while the departments themselves worked out their own local patterns of activity. Surgeon General Leonard A. Scheele of the Service expressed the hope that the effort would not be limited to the 28 states and the months of July and August, but that successful work in some communities would inspire others until "an unbroken chain of states, cities, and towns is dedicated to the elimination of syphilis as a leading cause of sickness, and disability in the United States."

The campaigns are being conducted along the lines of the pilot studies made in Washington, D. C., and New York City (*A.J.P.H.* 39, 2:276 (Feb.), 1949), in 1948.

CENTRAL AMERICAN NUTRITION INSTITUTE

On September 15 in Guatemala City were held inauguration ceremonies of the Nutrition Institute of Central America and Panama. The agreement to organize the Institute as a center for scientific studies of human nutrition coördinated with field investigation, was signed by all Central American countries and Panama, at a meeting called by the Pan American Sanitary Bureau in February, 1949. El Salvador, Guatemala, and Honduras have ratified the agreement and are contributing funds for the Institute; Costa Rica, Nicaragua, and Panama are expected to ratify.

The agencies involved in this coöperative effort are the departments of health and agriculture of the participating countries; the Pan American Sanitary Bureau, chief of whose Nutrition Section, Dr. Nevin S. Scrimshaw, is director of the new Institute; the W. K. Kellogg Foundation which has provided scholarships for training agronomists and other personnel from each participating country and also funds for technical and administrative direction and for laboratory equipment; the Rockefeller Foundation, which is training agronomists in Mexico; the department of food technology of the Massachusetts Institute of

Technology which helped to plan the Institute and to train fellows.

The Ministry of Health of Guatemala has provided the headquarters building for the Institute, located in Guatemala City.

NATIONAL CONFERENCE OF SOCIAL WORK ELECTS OFFICERS

At the 76th Annual Meeting of the National Conference of Social Work held in Cleveland, Ohio, the week of June 12, Martha M. Eliot, M.D., Associate Director-General, World Health Organization, Geneva, Switzerland, formerly Associate Chief of the U. S. Children's Bureau, was elected President of the 1950 Conference. Lester B. Granger, Executive Secretary of the National Urban League, New York, was elected first Vice-President. Joe R. Hoffer is the Executive Secretary of the Conference. The Cleveland meeting was under the Presidency of Ralph H. Blanchard, Executive Director of Community Chests and Councils of America, New York.

WESTERN BRANCH MERIT SYSTEM SERVICE RESOLUTION

At the annual meeting of the Western Branch, A.P.H.A., in Los Angeles in May, the following resolution commending the Association's Merit System Service was adopted by the membership:

WHEREAS, the American Public Health Association has established a Merit System Service which has been used by many local organizations and is available to many more, Therefore, be it

RESOLVED: That the members of the Western Branch commend the American Public Health Association for its foresight in establishing this service and urge the extension of its use.

NEW YORK CITY POLIO DIVISION

The City of New York Department of Health, "as part of definite plans to strengthen facilities for handling the problem of poliomyelitis," has created a division of poliomyelitis in the Bureau of Preventable Diseases and revived the department's technical advisory committee on poliomyelitis. All epidemiological work of the department on poliomyelitis will be centralized in the newly created division headed by Morris Siegel, M.D., who has been a member of the department since 1935.

ARTHRITIS ADVISORY GROUP

As the first step in an intensified nation-wide research program to find practical ways for combating rheumatic diseases, an advisory group of nationally known physicians and medical scientists, to the Public Health Service has been appointed, to be known as the Arthritis and Rheumatism Study Section of the National Institutes of Health.

One of the functions of the study section will be to explore the recently discovered possibilities of two substances, cortisone, popularly known as Compound E, and ACTH (adrenocorticotrophic hormone), which have been found to alleviate symptoms of patients suffering from rheumatoid arthritis. The group is headed by Phillip Hench, M.D., of the Mayo Clinic, Rochester, Minn. He and E. C. Kendall, M.D., headed a Mayo Clinic group which first investigated the two compounds. Their findings were recently made known.

In addition to Dr. Hench members of the new group are:

Walter Bauer, M.D., Massachusetts General Hospital

Granville Bennett, M.D., University of Illinois School of Medicine

Jerome W. Conn, M.D., University of Michigan

W. Paul Holbrook, M.D., Tucson, Ariz.

Robert Loeb, M.D., Columbia University College of Physicians and Surgeons

KENTUCKY REORGANIZES

Under a reorganization recently put into effect, the 19 divisions of the Kentucky State Health Department have been grouped into four main sections. They are:

Local Health Services which includes the divisions of county health work, maternal and

child health, public health nursing, dental health and mental health

Preventive Medical Services which includes epidemiology, tuberculosis control, venereal disease control, trachoma and blindness, and cancer control

Environmental Sanitation Services which includes sanitary engineering, food, drugs, and hotels, and industrial health

Central Administration Services which includes administration, budgets and accounts, vital statistics, bacteriology and laboratory services, public health education, and medical, hospital and related services

The July, 1949 issue of the *Bulletin* of the Kentucky Health Departments contains the organization chart that reflects the current administrative setup.

LILLY AWARD TO DR. KLOTZ

The 1949 Eli Lilly and Company Award in biological chemistry was presented to Irving M. Klotz, Ph.D., associate professor of chemistry, Northwestern University, at the annual meeting of the American Chemistry Society in Atlantic City in September. The award cites Dr. Klotz for his service in several phases of protein chemistry.

AFGHANISTAN RECEIVES WHO HELP

On July 22, the Pan American Sanitary Bureau, as the Western hemisphere regional office of WHO, was asked for help in combating an epidemic of louse-borne typhus in Afghanistan. Within a few days quantities of DDT were shipped to that country for dusting the area to destroy the disease-bearing lice.

ABSTRACTING IODINE LITERATURE

Iodine Abstracts and Reviews is a new bi-monthly periodical, published by the Iodine Fellowship at the Mellon Institute, Pittsburgh. The first issue appeared in July, 1949. It provides summaries of scientific and technical literature relating to the uses of iodine and its compounds in chemistry and in the industries. From time to time it will present reviews of specific phases of the science and technology of iodine. Complimentary subscriptions may be secured from the Iodine Educational Bureau, Inc., 120 Broadway, New York 5, N. Y.

NEWS OF ALASKA

The second marine unit of the Alaska Department of Health, the Yukon, has been in operation on the Yukon River during the summer. Designed like its sister barge, Hygiene and Health, it carries general public health to isolated areas. A physician, dentist, dental assistant, public health nurse, laboratory x-ray technician, and clerk make up its professional staff.

The Alaska Department of Health and its Commissioner recently met with the Armed Forces Disciplinary Control Board at the latter's request to discuss the inadequate regulations and enforcement efforts regarding the sale of liquor and the suppression of prostitution. They agreed that venereal diseases cannot be controlled without the complete suppression of prostitution, and that enforcement machinery of Territorial laws about dispensing liquor are inadequate and called upon the local community to accept its responsibility in these matters.

AMERICAN RED CROSS NEWS

Home Nursing Program on Guam—An American Red Cross program of home nursing and hygiene was recently set up in Guam at the request of the Guam Public Health Department. The assistant national director of home nursing, Ellen Aird, recently spent two months in Guam organizing the program, teaching non-nurse instructors, and completing 8 classes in home nursing and starting 8 others.

Foreign Study Visitors—Two Norwegian Red Cross Nurse leaders, both directors of nursing schools in Norway, recently completed a year's scholarship

visit in the United States under the auspices of the American Red Cross. They were studying primarily nursing curriculum, educational methods, nursing service, and hospital construction and management.

An Iraq child welfare clinic nurse, representing also the Iraq Red Crescent Society, recently arrived for a 6 months' fellowship to study the nursing services of the American Red Cross, particularly in relation to maternal and child welfare.

American Red Cross Nursing Services is off the press. Designed for nurses to inform them of Red Cross nursing activities and to encourage their participation, the booklet is said to be "a valuable tool in interpreting Red Cross nursing programs to schools of nursing and other nursing groups."

ALASKA PUBLIC HEALTH MEETINGS

The Alaska Department of Health recently held two meetings each of a week's duration for public health workers in Southeast Alaska and the Interior, respectively. Their theme was "Health Progress in Alaska" and represented the first year of general meetings rather than specialized institutes. Another departure from previous meetings was an exhibit, participated in by the health, welfare, and labor departments, the Alaska Cancer Society, Tuberculosis Association, and Crippled Children's Association. Guest speaker was Lee Powers, M.D., executive officer, department of preventive medicine, University of Washington College of Medicine. Over 170 persons attended the meetings of whom more than three-quarters took some part.

HEART DISEASE ACTIVITIES NEWS

The National Heart Institute of the Public Health Service in August began to publish the *National Heart Institute Circular* as an information medium to be issued from time to time "concerning research and related activities in the field of cardiovascular disease." The first issue is devoted to a summary of the organization and program of the National Heart Institute. News items on cardiovascular diseases, cardiac centers, and heart disease control programs will be welcomed and any information printed in the *Circular* may be reprinted. Heart Information Center, National Heart Institute, Room 2403, Building T-6, Bethesda 14, Md.

SURVEY OF HEALTH COUNCILS

The National Health Council has begun an inventory and analysis of state and local health councils in the United States. There are believed to be more than 500 such councils. The purposes of the study are to (a) gather current information concerning the number, location, characteristics, activities, and accomplishments of health councils; (b) analyze their patterns of organization and operation; (c) assess their effectiveness as instruments for planning and action in improving community health.

Samuel Peskin, who is completing work for the Ph.D. degree at Teacher's College of Columbia University, has been appointed on a nine month basis as a research fellow of the Council to carry on this study under the leadership of the Council's executive director, Thomas D. Dublin, M.D.

TRAINING MEDICAL SOCIAL WORKERS

The University of Illinois, through its Division of Services for Crippled Children, and the University of Chicago, through the School of Social Service Administration, announce a training project for medical social workers. The project provides for two types of training: (1) Six month field work in the Division of Services for Crippled Children with classroom courses at the University of Chicago. Apply to Dean, School of Social Service Administration, University of Chicago, Chicago 37. (2) Individually planned placements in the Division of Services for Crippled Chil-

dren for introduction into the activities of a medical social consultant in medical care programs. Apply to Director, University of Illinois Division of Services for Crippled Children, 1105 South Sixth Street, Springfield.

USING EXISTING AGENCIES

A program developed jointly by the New York State Committee on Tuberculosis and Public Health and the American Heart Association illustrates a pattern of existing state-wide organization to promote a relatively new special interest. The undertaking is a joint demonstration of organization, promotion, and service in the cardiovascular disease field. The agreement to coöperate in community heart disease activities was taken at the Annual Conference of the State Committee on May 10–11. The main points of the agreement are:

1. The State Committee on Tuberculosis and Health is designated by the American Heart Association as its representative agency in New York State.
2. A cardiovascular program undertaken in the state will be in accordance with the criteria and standards established by the American Heart Association.
3. Fund raising is the responsibility respectively of the tuberculosis and heart committees of local associations, one for the annual Christmas Seal Sale and one for the Heart Campaign in February.

INDUSTRIAL HYGIENE LABORATORY

The Medical Branch of the University of Texas at Galveston opened a research laboratory for industrial hygiene in September. It is planned particularly to coöperate with the heavy industries of nearby Texas City, but is available for consultation and service to all Texas industries. The laboratory is directed by Carl A. Nau, M.D., professor of preventive medicine and public health, and J. M. Neal, sanitary engineer.

ANNOUNCED WITH REGRET

The Lampasas-Williamson County Health Unit of Texas, population 56,000, has been discontinued. A new unit for Williamson County, population 43,000, has been organized, with headquarters in Georgetown. Effective July 1, C. C. Comer was appointed "Sanitarian in Charge" until a full-time medical director is appointed.

POSTGRADUATE COURSES: COLORADO MEDICAL CENTER

Poliomyelitis—Aided by a grant from the National Foundation for Infantile Paralysis, the University of Colorado Medical Center offers a series of postgraduate courses on poliomyelitis to physicians, with special emphasis on the comprehensive care of patients in an epidemic. Courses are open to physicians who reside in states west of the Mississippi. Three one week courses are currently scheduled: November 7–11, 1949, March 13–18, 1950, and May 22–27, 1950.

New-born Infants—A postgraduate course for the purpose of orienting the practising physicians in the problems of new-born infants, both premature and full term, sponsored by the University of Colorado School of Medicine and the Colorado State Department of Health, will be given November 2–5, 1949.

Guest lecturer is William L. Bradford, M.D., associate professor of pediatrics, University of Rochester (N.Y.) School of Medicine. Registration fee for this course is $5, tuition, $10.

Further information on both courses from Director, Graduate and Postgraduate Medical Education, University of Colorado School of Medicine, Denver, Colo.

BIRTH OF A BABY MODELS ARE WIDELY USED

According to an announcement by Bruno Gebhard, M.D., Director of the Cleveland Health Museum, the Washington State School for the Blind was the first institution of its kind to use the Dickenson-Belskie models which are

3 dimensional, sculptured models of human reproduction known as "The Wonders of New Life."

Other organizations now using duplicates of the models for teaching purposes include:

Butterworth Hospital, Grand Rapids
Clara Elizabeth Maternal Health Fund
City of San Jose, California
Dalhousie University, Halifax
Dallas Health Museum
Denver Public Health Department
Mississippi State Health Department
North Carolina College for Nurses
Nova Scotia Museum of Science
Ohio State University Medical School
Opportunity School, Denver, Colorado
Public School System, Ann Arbor, Michigan
Public School System, Jackson, Michigan
Public Health Committee, Honolulu
Tufts College
University of California
University of Oregon
University of Manitoba

A new folder describing these models as well as teaching models and film strips has been prepared by the Museum, together with price lists. Details available from Cleveland Health Museum, 8911 Euclid Avenue, Cleveland 6.

DR. UNDERWOOD'S 25TH ANNIVERSARY

A large group of his friends and associates gathered in Jackson, Miss., on August 8 at a dinner commemorating 25 years of service as State Health Officer of Felix J. Underwood, M.D.

The program was under the chairmanship of Mrs. Elizabeth N. Wates. The toastmaster was Dr. Henry Boswell. Governor Fielding L. Wright spoke and presented gifts to Dr. Underwood. His service was eulogized in the words of Alexander Pope:

"Statesman, yet friend to truth; of soul sincere
In action faithful, and in honor clear;
Who broke no promise, serv'd no private end,
Who gained no title, and who lost no friend."

NEW YORK'S DOZEN

With the establishment on November 1 of the Seneca County Health Department, 12 of the 57 New York upstate counties will have full-time county health departments. The way was cleared for the establishment of the Seneca County Health Department by resolution of the Board of Supervisors and the subsequent approval of the State Health Commissioner. This is the sixth county to organize under the 1947 public health law. Under the earlier permissive law for county health departments passed in 1921, only six counties had been organized.

MILK QUALITY AND MILK REGULATIONS

A study of the effect of health and sanitary regulations upon milk quality is being undertaken by the National Research Council under a contract with the U. S. Department of Agriculture, financed by the Research and Marketing Act.

Market milk and its products must conform to various statutes, ordinances, and regulations adopted and administered by local, state, and federal authorities for the purpose of protecting public health. Such regulations are applicable to production, processing, and distribution, and are designed to insure the maintenance of various safety, nutritional, and esthetic properties of milk and its products. They may differ widely in requirements and differ also with respect to administrative interpretation and enforcement practices.

The purpose of the present study is to determine precisely what requirements are being enforced in representative jurisdictions and how the requirements affect the quality of milk delivered to the consumer. In this study the term milk is considered to include market milk and such milk products as cream and skim milk for fluid use and for use in the manufacture of ice cream.

It is planned, initially, to study municipalities with populations between 100,000 and 500,000 and the states within which these cities are situated.

Statutes, ordinances, and regulations will be compiled in order to determine the range of variation of actual requirements in force, and select typical jurisdictions for intensive field study, including associated administrative and enforcement procedure. The effect of regulations upon quality will be investigated through laboratory and other research methods.

DR. WOLMAN TO EUROPE FOR WHO

Abel Wolman, head of the Sanitary Engineering Department of Johns Hopkins University, attended the first meeting in Geneva, beginning on September 10, of the newly organized Expert Committee on Environmental Sanitation of the World Health Organization, as United States representative.

The meeting drafted a program for improved sanitation in member countries of WHO. Water supplies, sewage disposal, control of mosquito-borne diseases, among other topics, were on the agenda.

POSTGRADUATE INDUSTRIAL HYGIENE

Beginning with the current academic year, the Harvard University School of Public Health's department of industrial hygiene has undertaken a new type of postgraduate industrial health program. The program, divided into three major fields: industrial medicine, environmental hygiene, and public health, includes courses in planning, organizing, and directing health efforts of industrial companies, whole industries, groups of companies and employees. The related teaching and research facilities of Harvard University, including certain special facilities at the Massachusetts Institute of Technology and other coöperating institutions, are available.

The head of the department is Philip Drinker, LL.D. The courses are open to all qualified physicians, with preference to persons who have had experience in industrial medicine. Successful candidates will be awarded the newly established degree of Master of Industrial Health.

Apply secretary, Harvard School of Public Health, 55 Shattuck Street, Boston 15.

FLORIDA'S DIABETES PROGRAM

A state-wide diabetes service program of the State Board of Health was begun in Florida in July. It followed the patterm of case finding and education established by the Public Health Service Diabetes Demonstration Unit in Jacksonville. The State Health Department decision to initiate this service on a statewide level followed the numerous demands for the program when the work of the Jacksonville unit, one of two in the country, had been recognized as highly successful. There is testing for diabetes, especially among relatives of diabetics; free insulin is provided those unable to afford it. Classes for diabetics are held in county health departments and help given to groups of diabetics who wish to start a diabetes association. A monthly educational bulletin is sent to diabetics and their relatives.

ECPD NEWS

The present status of the accreditation of engineering schools and curricula was announced at a recent meeting of the Engineers' Council for Professional Development. H. T. Heald, chairman of the Committee on Engineering Schools of ECPD reported inspections of 106 engineering colleges during the previous two years. During these inspections, 481 curricula were reviewed, including 112 inspected for the first time. By the end of the current inspection year "a large share of the previously accredited curricula will have been reviewed and virtually all new curricula for which inspection has been requested will have been examined." The committee is also studying the accreditation of graduate work in engineering. A joint committee of ECPD and the A.P.H.A. has been

in existence for the past two years, formed for the purpose of studying accreditation of graduate engineering courses designed for engineers planning to enter public health.

RED CROSS BLOOD PROGRAM

Ross T. McIntire, M.D., director of the American Red Cross National Blood Program, reports that by June 30, 1949, nearly 275,000 pints of blood had been collected in the regions where the program is in operation. The blood has been made available to 1,100 hospitals, 50 independent clinics, and 145 practising physicians. The Blood Program has prepared " General Functions of the Chapter Medical Advisory Committee," which it is making available to appropriate medical groups.

INDIANA TUBERCULOSIS COUNCIL

The 1949 Indiana General Assembly established a Tuberculosis Council to aid the State Board of Health in the treatment and care of tuberculosis. The executive secretary of the seven man board recently appointed by the Governor is Murray Auerbach, Executive Secretary of the Indiana Tuberculosis Association.

WASTE TREATMENT CONFERENCES

Two conferences on waste treatment have been announced. The first, the Second Annual Public Health Engineering Conference, will be held in Gainesville, Fla., on November 18 and 19 under the auspices of the Civil Engineering Department of the University of Florida. The general theme will be Economics of Sewage Treatment. Room reservations can be made at the Hotel Thomas or the White House Hotel. Further information can be obtained from Prof. John E. Kiker, Jr., at the University.

The Fifth Industrial Waste Conference, under the auspices of Purdue University, will be held at the University, Lafayette, Ind., on November 29 and 30. Developments in waste disposal and utilization will be discussed. Legal aspects will be included. Registration fee $4.00. Room reservations can be made at the Union Club on the campus or the Fowler, Cedar Crest, or Lahr Hotels. Prof. Don E. Bloodgood is Chairman.

ALASKA VITAL STATISTICS BUREAU

A bill passed by the recent session of the Alaska Territorial Legislature transfers responsibility for vital statistics to the Territorial Department of Health. Hence, a vital statistics bureau has been set up at the central office in Juneau. Dr. Albert Bailey and Dr. Francis E. Kester from the National Office of Vital Statistics in Washington helped to set up the new bureau.

SOUTH CAROLINA ASSOCIATION OF SANITARIANS

The following officers were recently elected by the South Carolina Association of Sanitarians during their meeting at Myrtle Beach, S. C.

President: Harry D. McDaniel
Vice President: E. T. Ammons
Secretary-Treasurer: Charles A. Farish

PROGRESS UNDER HILL-BURTON HOSPITAL CONSTRUCTION PROGRAM

A report by the Public Health Service as of June 30, 1949, shows that 501 projects have been finally approved for federal aid under the Hill-Burton Act for hospital construction, and that 290 more projects have been initially approved.

According to this report, 35 projects have been completed and 112 others are more than half completed. Those under construction at the present time total 355. In spite of the fact that actual payments made by the federal government to date total only $10,600,000, the total overall cost of these projects is about $500,000,000, one-third of which will eventually be borne by the federal government.

STREAM POLLUTION FUND ALLOCATIONS

The office of the Federal Security Administrator announces the provisional allotment of $850,000 to the states, territories, and the District of Columbia for grants to study water pollution resulting from industrial waste. This sum is part of the $2,200,000 appropriated by the 81st Congress for the purpose of initiating a nation-wide program of water pollution control and prevention. Each of the states and territories and the District of Columbia is represented in the provisional allotment. The largest sum, $35,326, is proposed for the State of New York; the smallest, $8,645, for the Virgin Islands.

LOULA DUNN A.P.W.A. DIRECTOR

The appointment of Loula Dunn as Director of the American Public Welfare Association has been announced by Joseph E. Baldwin, President of the Association and Director of the Milwaukee Department of Public Welfare. Miss Dunn has been the Commissioner of the Alabama State Department of Public Welfare since 1937. She assumed her duties with the Association September 20.

Miss Dunn was President of the American Public Welfare Association in 1945 and 1946 and has also held national office in the American Association of Social Workers, the Child Welfare League of America, and the American Society for Public Administration.

PROPOSED SURVEY OF SICKNESS IN THE UNITED STATES

Senator Claude Pepper of Florida jointly with Senator James E. Murray of Montana has introduced Senate Bill 2211 to provide for a survey of sickness in the United States. The Bill has been referred to the Committee on Labor and Public Welfare.

According to the Bill, it is pointed out that the latest information of the number of persons in the country suffering from heart disease, cancer, diabetes, rheumatism, arthritis, and other disabling diseases, injuries and handicapping conditions, is now thirteen years old and seriously out of date. The Bill points out that such information is urgently needed for (1) an appraisal of the true state of health of our citizens, (2) for the effective planning of any programs to improve their health, (3) for research in the field of chronic diseases, (4) for an evaluation of the impact of long illness upon the economic status of families with members so afflicted, and (5) for measurement of the numbers of persons in the working ages so disabled as to be unable to perform gainful work.

The Bill proposes that the Surgeon General of the Public Health Service be authorized and directed to make a survey by the most reliable means of the number of persons affected by chronic or other disease or injury or handicapping condition, the type of disease or injury of each person so afflicted, and the length of time that each such person has been prevented from carrying on his usual occupation or activities. A report is to be made within twelve months. The Bill carries an authorization of such sums as are needed, not exceeding in the aggregate $750,000. It is further provided that similar surveys shall be conducted at four year intervals.

WABASH RIVER POLLUTION STUDY

The Ohio River Valley Water Sanitation Commission has commenced studies of the Wabash River between Terre Haute, Ind., and Mt. Carmel, Ill., to determine the extent of pollution of the river. Necessary action to prevent unwarranted pollution of the stream by municipal or industrial waste discharges will be determined as a result of the study. Robert K. Horton will direct the studies. Clarence Klassen and Blucher A. Poole will represent Illinois and Indiana, respectively, in the work.

NATIONAL STANDARDS AND LOCAL ORDINANCES

Nationally Recognized Standards in State Laws and Local Ordinances, published by the American Standards Association, 70 East 45th Street, New York 17, presents the pros and cons of incorporating in local ordinances nationally recognized standards by title reference only. Legal handicaps to such a procedure are discussed as well as possible methods for doing it. The legal requirements of the various states are given.

PERSONALS

C. F. ADAMS, M.D.,* was appointed Acting Director of the Division of Health, State of Missouri, Jefferson City, effective June 6, succeeding ROBERT M. JAMES, M.D.

J. B. ASKEW, M.D., M.P.H.,† for the past 2 years Assistant Director, has been appointed the Director of Public Health for San Diego City and County (California), succeeding ALEX M. LESEM, M.D.*

LOLA BEAGLE has joined the staff of the Ohio Department of Health as a field nursing consultant, for the 18 counties of State Health District 4, with headquarters in Athens.

WELBY W. BIGELOW, M.D.,† who resigned as Acting State Health Officer, Utah State Department of Health, Salt Lake City, has been appointed Surgeon (R) in the U. S. Public Health Service and has been designated as Chief of the Office of Personal Health Services in Regional Office No. 4, Cleveland, Ohio.

CHESLEY BUSH, M.D., is acting executive secretary, California Tuberculosis and Health Association, San Francisco, succeeding H. FORD HIGBY, deceased.

CAROLINE H. CALLISON, M.D.,* has been appointed Health Officer for the Rockingham-Harrisonburg, Health District, Virginia.

EDWIN CAMERON, M.D., M.P.H.,* formerly Health Commissioner of Delaware, was appointed chief of the Division of Local Health Administration, Connecticut State Department of Health, effective July 1.

WILDA CAMERY,† formerly education director of nurses, Montclair (N. J.) Health Department, is now assistant chief in education, Pittsburgh (Pa.) Department of Public Health.

VICTORIA M. CASS, M.D.,† epidemiologist and editorial research and coördinator in the Massachusetts State Department of Public Health, is on a year's leave of absence to work toward a master's degree in public health in the Harvard School of Public Health under a fellowship grant.

JOHN W. CLAIBORNE, formerly Chief Medical Officer, Veterans Administration Regional Office, Nashville, Tenn., has become manager of the V-A hospital at Jefferson Barracks, Mo.

J. RICHARD CONNELLY, formerly Assistant Secretary of the Medical Society, District of Columbia, has been made Executive Director of the American Diabetes Association, with headquarters at 1 Nevins Street, Brooklyn, N. Y., and Business Manager of the Association's magazine, ADA *Forecast* and other publications.

ROLAND R. CROSS, M.D.,† has been reappointed Illinois State Director of Public Health, effective June 1.

A. V. DENEVEU, M.D., has become Health Officer of Wisconsin State Health District 1, with headquarters in Madison.

ROBERT H. ENGLISH, M.D., is now clinical director of Kentucky's cancermobile and 18 cancer clinics sponsored by the State Health Department

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* Fellow A.P.H.A.
† Member A.P.H.A

and the Kentucky Chapter of the American Cancer Society.

MILTON FEIG, M.D., M.P.H.,† began service as Health Officer of Wisconsin State Health District 6, with headquarters in Green Bay, in January.

LLOYD FLORIO, M.D., DR.P.H.,* Professor of Public Health, University of Colorado School of Medicine, Denver, has been awarded a fellowship from the World Health Organization for a 3 month study period in Europe. He will study in Denmark, Italy, and England, problems of teaching preventive medicine and public health, the organization of health departments, the British medical care plan, and tissue culture work.

OLLIE M. GOODLOE, M.D.,† Health Commissioner of Columbus, Ohio, recently received the 1949 "Outstanding Citizen Citation for Public Service," by the Columbus Junior Chamber of Commerce with specific mention of the venereal disease control program and the training classes for food and milk handlers and producers, and barbers.

WILLIAM W. HARGRAVE, M.D., is now Health Officer for the Campbell-Charlotte Health District, Virginia.

MARGARET E. HATFIELD, M.D.,† Health Officer of Wisconsin's State Health District 9, has resigned to accept a position with the Milwaukee City Health Department.

PATRICIA I. HEELY, R.N.,† has been appointed Director of the Bureau of Public Health Nursing of the New York City Department of Health, succeeding HORTENSE HILBERT, R.N., who has served in a temporary status in the position for several years.

HELEN EDGECOMB HESS has been appointed Associate Director of the Adelphi College, Garden City, N. Y., School of Nursing, where she will direct the advanced program in Psychiatric Nursing offered for the first time in September, 1949.

MARY BURNETT HORTON,† who has been Educational Director for the Sheffield Farms Company, New York, has been elected to its Board of Directors, the first woman to become a member of the Company's Board in its 108 years of operation.

DANIEL J. HURLEY, M.D.,† has returned to Nevada as State Health Officer following an academic year in the University of California School of Public Health, where he received the degree of Master of Public Health.

WADDIE P. JACKSON, M.D., has been appointed Health Officer for the Bedford-Franklin Health District, Virginia.

RAYMOND KINSEY, PHAR.D., a member of the Public Health Service staff since 1914, has been appointed pharmacist director of the Public Health Service, the first pharmacist officer to be appointed to the director grade in the history of the Service.

MILTON E. KOSSACK, M.S.P.H.,* formerly Director of Health Education, New Orleans Health Department, is now Director of Health Education, Louisiana Sfate Department of Health.

ALEXANDER D. LANGMUIR, M.D., M.P.H.,* has resigned as Associate Professor of Epidemiology at Johns Hopkins University School of Hygiene and Public Health, Baltimore, to become Chief of the Epidemiology Division of the Public Health Service Communicable Disease Center in Atlanta.

COLONEL CHARLES S. LAWRENCE, retired from the Army in September, 1949, has been appointed Executive Secretary of the Institute of Food Technologists and Business Manager of *Food Technology*, the official organ of that society, with headquarters in Chicago.

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* Fellow A.P.H.A.
† Member A.P.H.A.

KENNETH E. MARKUSON, M.D., M.P.H.,† formerly Director of the Bureau of Industrial Health, Michigan Department of Health, became Assistant Medical Director, Bureau of Industrial Hygiene, Connecticut State Department of Health in July.

ALBERTA MARTIN recently retired as Orthopedic Public Health Nurse, New York State Health Department, after serving in that capacity since 1931.

HELEN A. MASON, formerly medical social worker, University of Colorado Medical Center, has joined the Social Service Section as medical social consultant, Colorado State Health Department.

MYRTLE OLSON, R.N.,† formerly Trempealeau County (Wisconsin) Nurse is now tuberculosis consultant in the Visiting Nurse Association of New Haven, Conn. She is succeeded by BETTY GODWARD, R.N., formerly with the Winona, Minnesota, Health Department.

CHARLES RICHARDSON, JR., M.D., Deputy State Health Officer, Hartford County, Maryland, has resigned to engage in the private practice of medicine.

WILLIAM SALERO has been employed as a food and drug inspector, in the Food and Drug Division, Kansas State Board of Health.

MARY JANE SKENADORE, R.N., has left the Marathon County (Wisconsin) Health Unit to join the Navy Nurse Corps, and is stationed at the U. S. Navy Hospital, Chelsea, Mass.

HOWARD A. STREETER, M.D.,* has retired as Health Officer of Manchester, has bee Powers.

IVA TORRI fessor of cuse Un has join the Vete Service i

CLAIR E. TURNER, DR.P.H.,* assistant to the president of the National Foundation for Infantile Paralysis, was employed during August and September, by the World Health Organization, "to conduct a preliminary survey in the field of health education and to draft initial plans for the World Health Organization program in this field."

JAMES D. VAGNEUR, D.V.M.,† formerly public health veterinarian, Grand Junction, Colo., is now director of the veterinary public health program, with special attention to milk sanitation in the Colorado State Health Department, having just received the Master of Public Health degree from the University of Michigan.

JOHN WAKEFIELD,† with the department since 1937, has been named Director of the Sewage and Waste Disposal Division, Bureau of Sanitary Engineering, Florida State Board of Health after completing work for his master of science degree in sanitary engineering at Harvard University.

DOROTHY JEAN WINANS has been appointed Vital Statistics Registration Supervisor, Virginia State Department of Health.

ALICE WOOLDRIDGE, most recently Red Cross district nurse for western Pennsylvania, has become public health nursing supervisor, Pittsburgh (Pa.) Department of Public Health.

ALASKA TERRITORIAL DEPARTMENT OF HEALTH, NEW STAFF MEMBERS:

GRACE E. FIELD, M.D., Assistant Director, Communicable and Preventable Disease Control Division

JOHN R. KUHN, Laboratory X-ray Technician, to be stationed aboard the HEALTH, one of the Departments marine units.

WENDELL C. MATHEWS, M.D., Tuberculosis Control Consultant, stationed at the Anchorage branch office. He was formerly Associate Radiologist, Franklin County Public Hospital, Greenfield, Mass.

DEATHS

HELEN E. BOND,* Director of Nursing Service, City Health Department, Savannah, Ga. (Public Health Education Section).

PAUL A. BREHM, M.D., Director of Industrial Hygiene, Wisconsin State Board of Health, died recently.

BRUCE H. DOUGLAS, M.D.,* Commissioner of Health, Detroit Department of Health, was killed in an automobile accident on August 11 (Health Officers Section).

SARI P. MAYO,† New York City, died recently (Public Health Education Section).

HENRY E. MEDBURY,† Technical Service Director, American Bottlers of Carbonated Beverages, Washington, D. C., died several months ago (Food and Nutrition Section).

ALMON L. FALES,* Newton Center, Mass. (Engineering Section).

ARTHUR D. JAQUES, M.D.,† Visiting Psychiatrist, Meadowbrook Hospital, Lynbrook, N. Y. (Unaffiliated).

IRL B. KRAUSE, M.D.,* Jefferson City, Mo. (Maternal and Child Health Section).

A. VICTOR NASATIR, M.C. Surgeon, M.D., M.S.P.H.,* Director of Industrial Hygiene, Los Angeles City Health Department (Industrial Hygiene Section).

DONALD C. TULLOCH, M.D., M.P.H.,† New York State Department of Health, Albany, N. Y. (Epidemiology Section).

CONFERENCES AND DATES

American Association for the Advancement of Science. New York, N. Y. December 26–31.

American Cancer Society. Park Sheraton Hotel, New York, N. Y. October 27–30.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Tropical Medicine, The American Academy of Tropical Medicine, and the National Malaria Society. Memphis, Tenn. November 6–9.

American Water Works Association:
- Alabama-Mississippi Section. Jackson, Miss. October 19–21.
- Arizona Section. San Carlos Hotel, Yuma, Ariz. November 11–13.
- California Section. Sacramento, Calif. October 26–28.
- Chesapeake Section. Washington, D. C. November 2–4.
- Florida Section. Orlando, Fla. November 14–16.
- New Jersey Section. Atlantic City, N. J. November 17–19.
- North Carolina Section. Southern Pines, N. C. November 7–9.
- Ohio Section. Cleveland, Ohio. November 3–4.
- Virginia Section. Roanoke, Va. October 24–25.

Federation of Sewage Works Associations. 24th Annual Meeting. St. Paul, Minn. October 8–11.

First Inter-American Regional Congress & Second National Congress of Hygiene & Social Medicine. Sponsored by the Government of Argentina and the Pan American Sanitary Bureau. Santa Fe, Argentina. October 21–25.

Forty-eighth Annual Conference of the Surgeon General of the Public Health Service and the Chief of the Children's Bureau with the State and Territorial Health Officers, State Mental Health Authorities, and State Hospital Survey and Construction Authorities, Federal Security Building, Washington, D. C. October 19–22.

International Association of Milk and Food Sanitarians. Weschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

National Safety Congress and Exposition (National Safety Council). Morrison Hotel, Chicago, Ill. October 24–28.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y. November 7–9.

II Pan American Congress on Pediatrics. Mexico, D.F. November 2–5.

North Dakota Public Health Association. Dakota Hotel, Grand Forks. November 10–12.

Pennsylvania Association of Clinical Laboratories. Harrisburg, Pa. November 2.

Pennsylvania Public Health Association. Penn Harris Hotel, Harrisburg, Pa. November 2.

Planned Parenthood Federation of America, Inc. Roosevelt Hotel, New York, N. Y. October 25–27.

Third Inter-American Congress of Radiology. Santiago, Chile. November 11–17.

Washington State Public Health Association. Davenport Hotel, Spokane, Wash. October 10–11.

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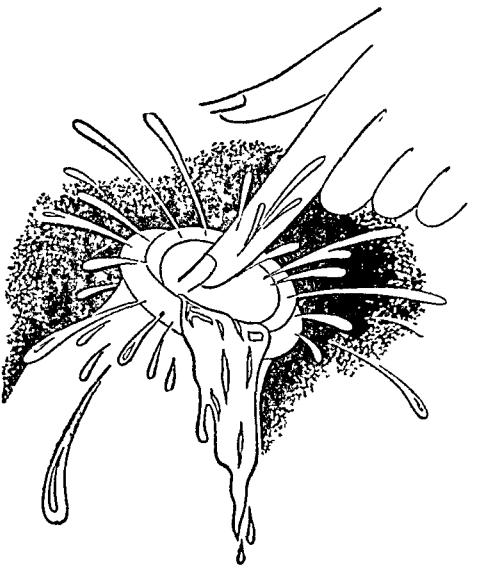
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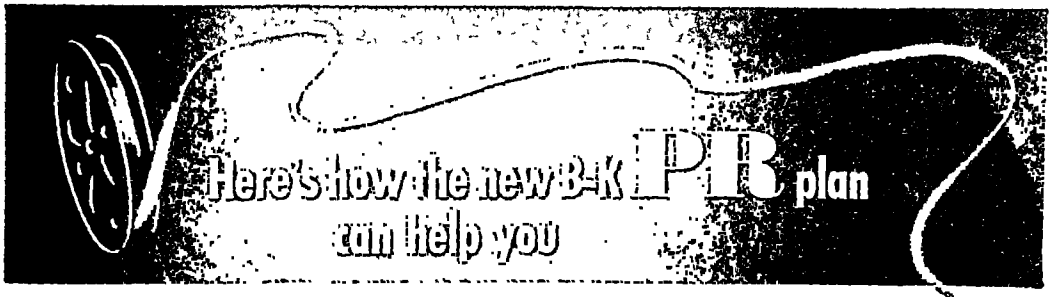


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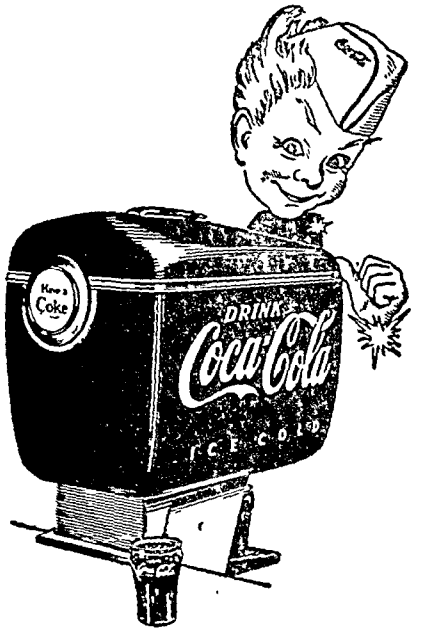
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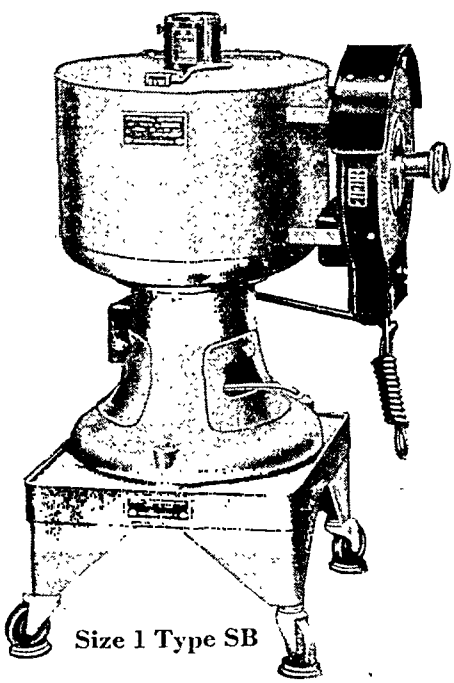


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[1]Krantz, J. C., Jr., and Carr, C. J.: Pharmacologic Principles of Medical Practice. Williams & Wilkins Co., Baltimore, 1949, pps. 114-119.

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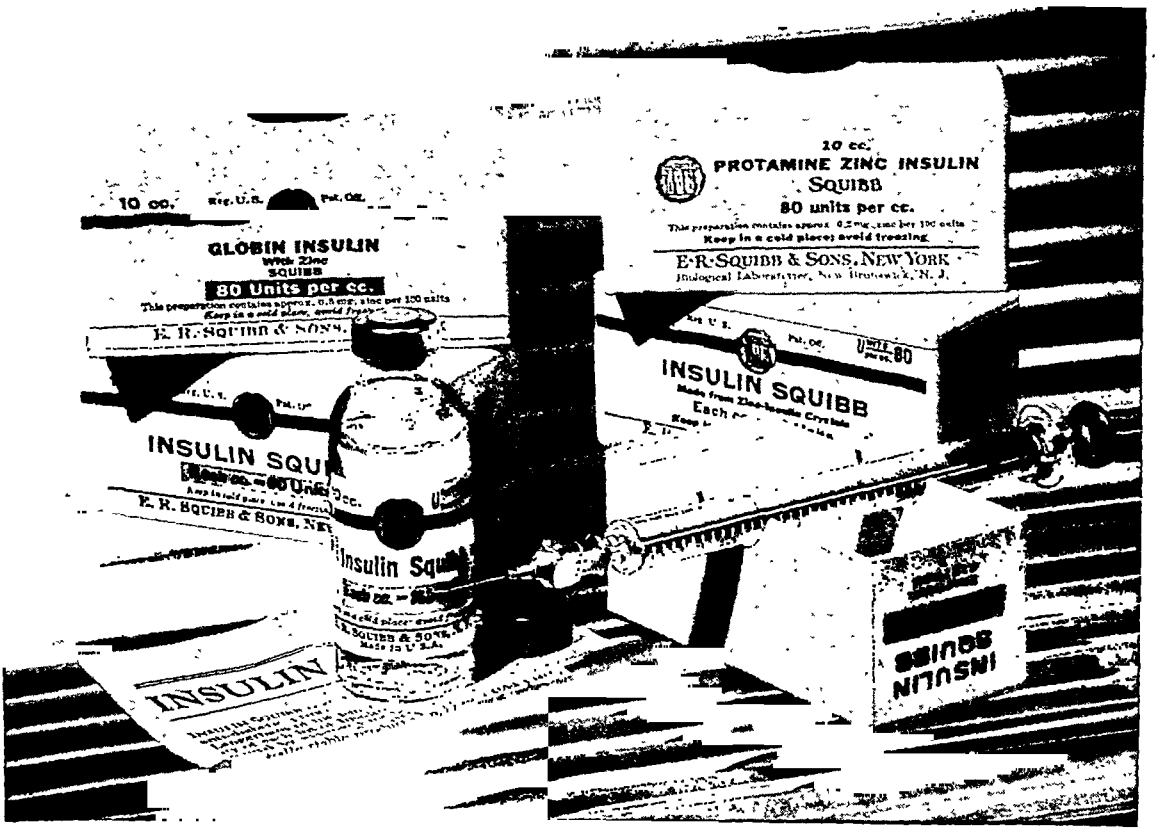
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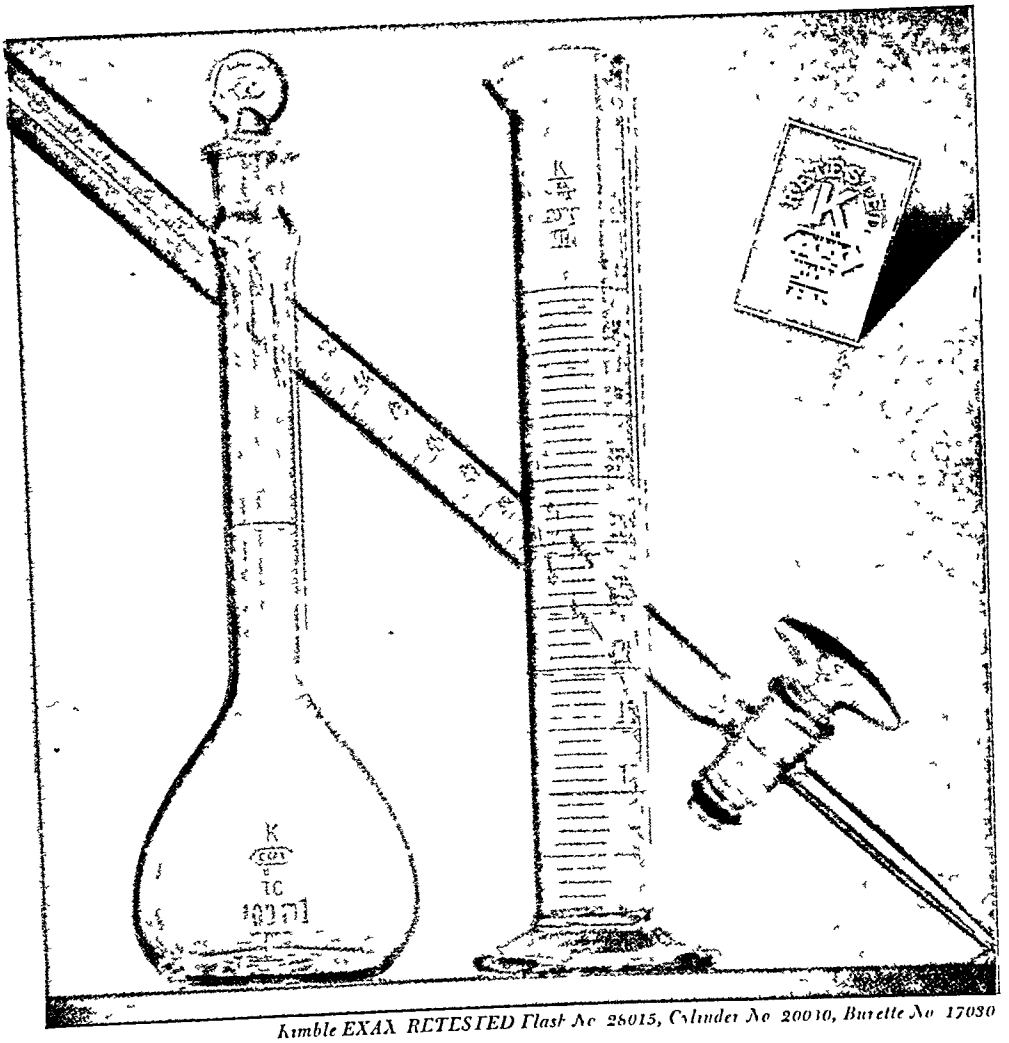
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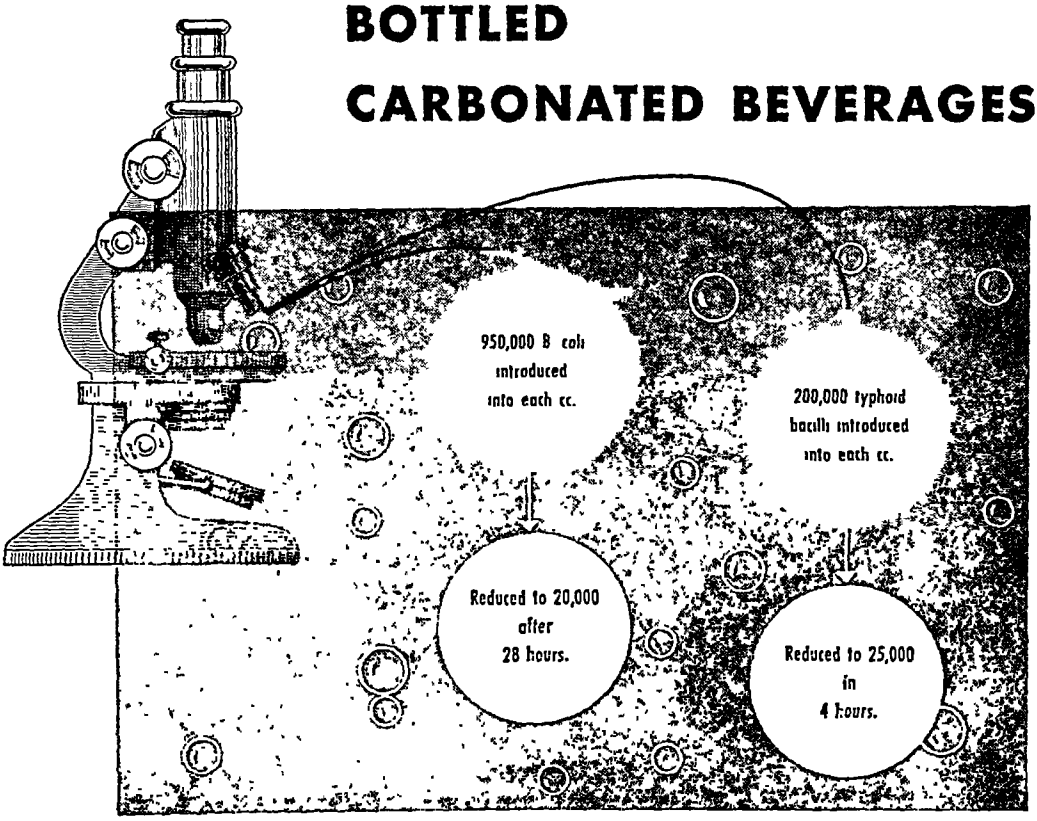
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3. Donald, J. R., Jones, C. L., and Maclean, A. R. M.: Am J. Pub Health, Feb., 1924.

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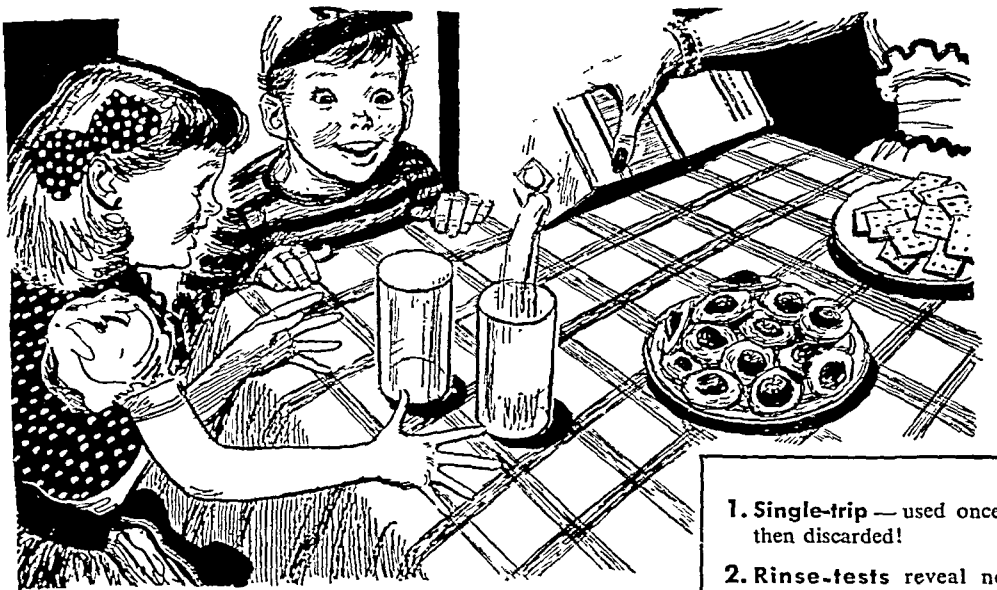
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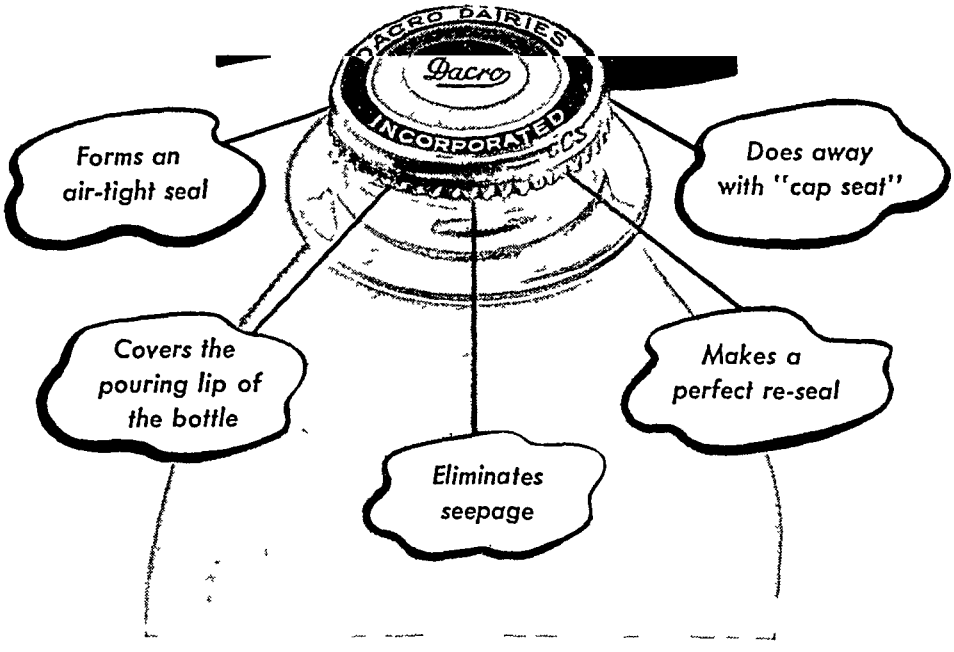
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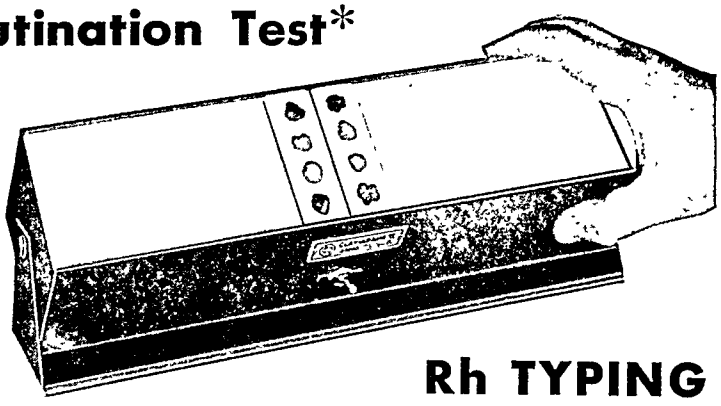
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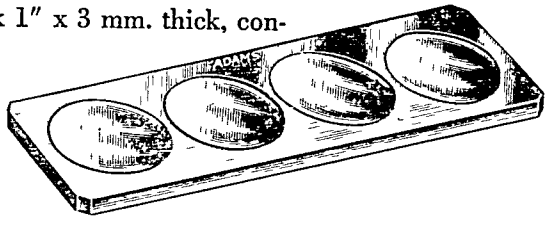
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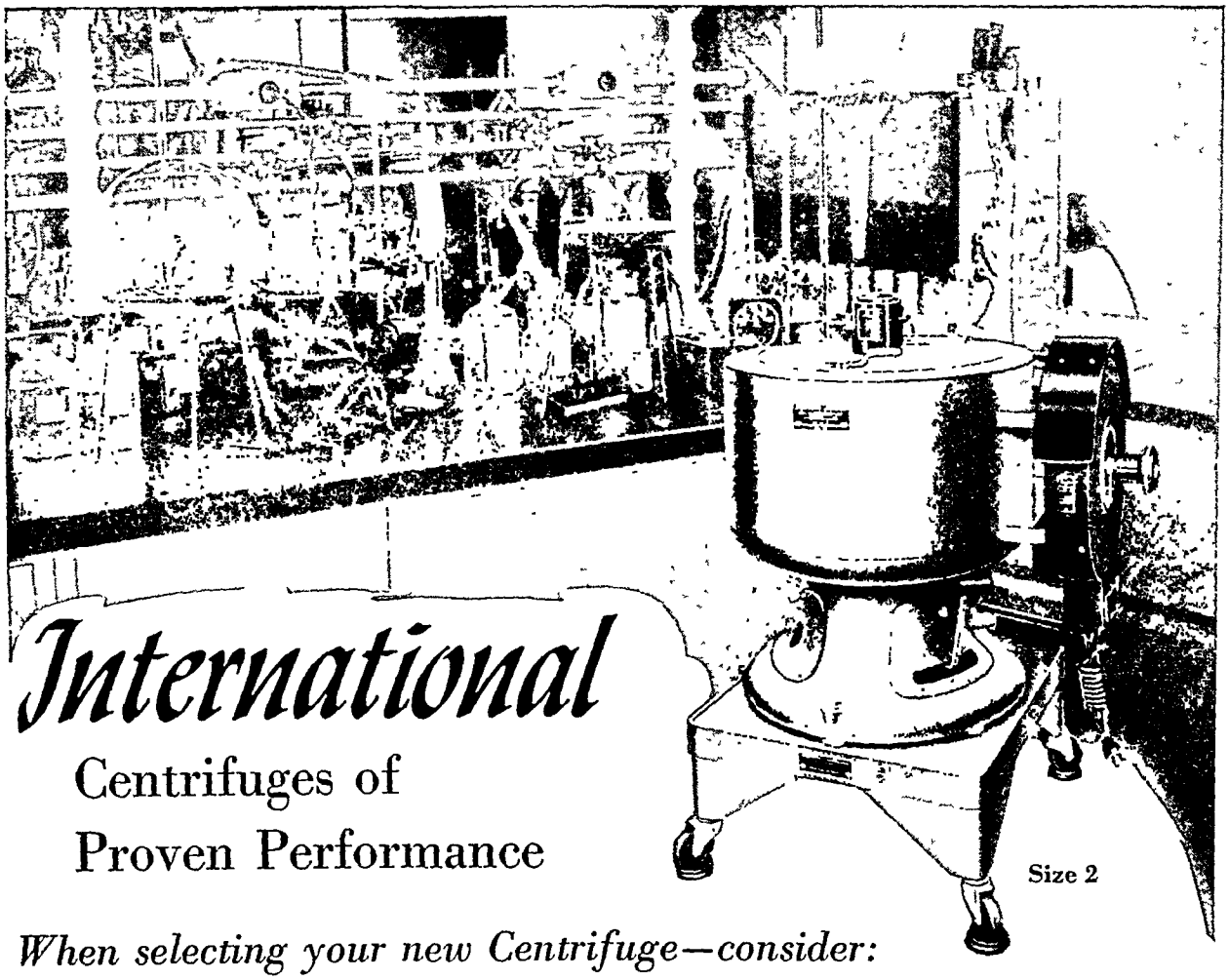
* "The Demonstration of Anti-Rh Agglutinins—An Accurate and Rapid Slide Test," Louis K. Diamond, M.D., Boston, Mass., and Neva M. Abelson, M.D., Philadelphia, Pa.: J. Lab. & Clin. Med., March 1945.

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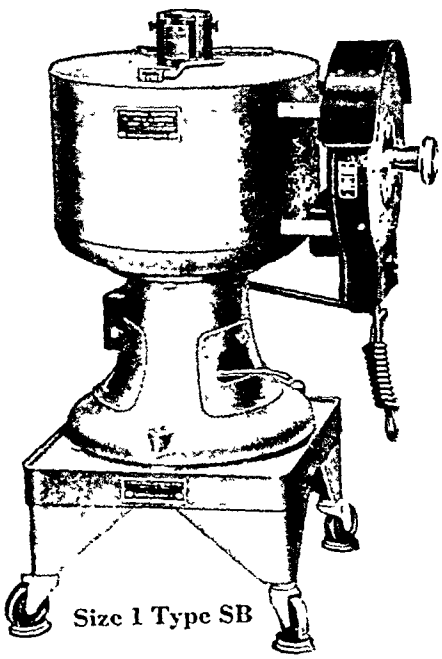


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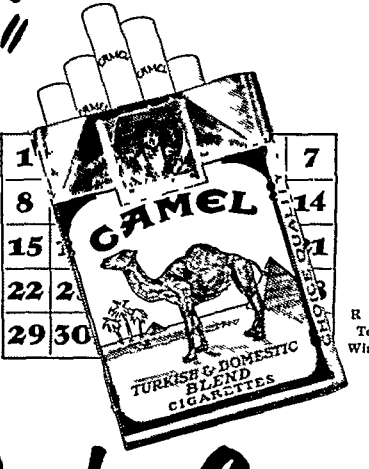
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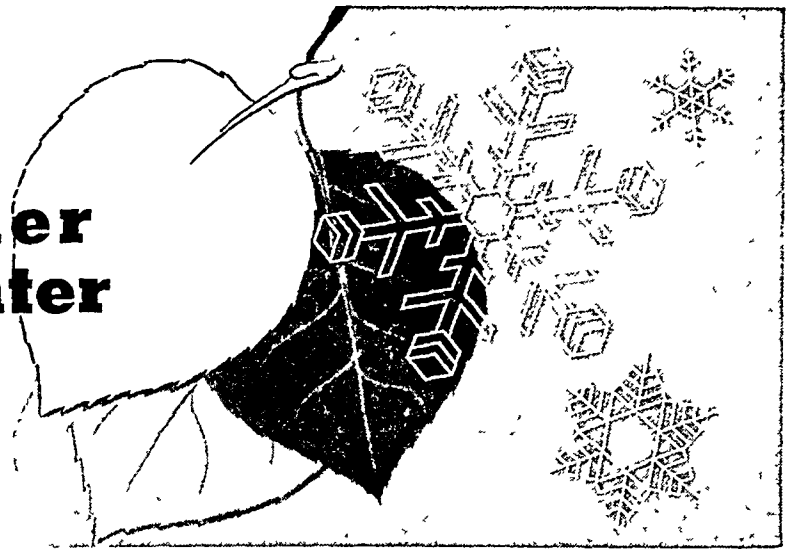
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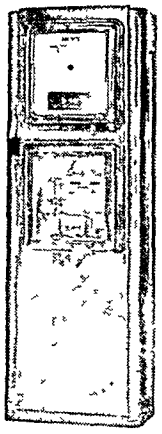
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American Journal of Public Health
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Volume 39 December, 1949 Number 12

International Aspects of Child Feeding*

MARJORIE L. SCOTT

Nutrition Officer, Nutrition Division, Food and Agriculture Organization of the United Nations, Washington, D. C.

THE growth of nutrition as a science, especially within the last decade or two, is representative of the increasing value attached to it as a tool, not only in public health programs, but also in planning agricultural production and the distribution of food. Let us consider some of its international aspects as related to child feeding programs.

It may be remembered that in 1937 the Mixed Committee of the League of Nations said in its report: "The movement towards better nutrition in the past has been largely the result of the unconscious and instinctive groping of man for a better and more abundant life. What is now required is the conscious direction of the natural tendency towards better nutrition. Such direction constitutes policy. The primary concern of nutrition policy is with bringing foods essential for health and physical development within the reach of all sections of the community. . . ."

It was in this spirit that the problem was reviewed at the United Nations Conference on Food and Agriculture, held at Hot Springs in 1943. Those who are familiar with that Conference will recall that the basic principles which should guide FAO in its nutritional activities and the objectives to be aimed at were fully discussed.

At the Quebec Conference in 1945 where FAO—The Food and Agriculture Organization of the United Nations—came into being, it was recommended that improvement of the diet of pregnant and nursing women, infants, preschool and school children should be an immediate occupation of FAO, and likewise hold a prominent position in its long-term program. It is the Nutrition Division, one of the six technical divisions of FAO, that has concerned itself with this task.

Malnutrition in varying degrees is known to exist in all classes and in all countries. Aside from an inadequate food supply—either local, such as the milk-deficit areas in the Southern United States, or national, such as still obtains in many countries today—poverty and

* Presented at a Joint Session of the American School Health Association and the Food and Nutrition Section of the American Public Health Association at the Seventy-seventh Annual Meeting in New York, N. Y., October 27, 1949.

ignorance are recognized as the chief causes of malnutrition.

School feeding programs can play an important role in combating malnutrition. The extent to which they may supplement the home diet will, of course, vary, depending upon the economic status and the food habits of the group concerned. But an important aspect is the very excellent opportunity they afford for education in nutrition. The school child is at a vulnerable age when good or bad food habits, which may have a bearing on his whole life, are formed. Furthermore, the knowledge and appreciation of nutrition gained by a child at school are frequently transferred to the parents and may influence their choice of foods.

School meals are perhaps the most common form of supplementary feeding, and programs differing considerably in their organization and scope operate in various countries. It is interesting to note that the provision of meals for school children was originally undertaken by charitable or voluntary organizations as a means of assisting needy children.

Frequently, the so-called "meal" took the form of a bowl of broth or a slice or two of bread, and contributed very little to the child's nutritional needs. Gradually, however, education authorities took an interest in school feeding as they began to realize the important influence of an adequate diet on the well-being—and behavior—of children. Today in some countries such as the United Kingdom and the United States, there are national school feeding programs supported by government legislation. In some countries voluntary organizations have initiated local programs, while in others no action has as yet been taken. The recent war and the acute food situation which followed, served to highlight the value of supplementary feeding programs in maintaining or improving the health of vulnerable groups. Much of the work of relief organizations has been directed toward the feeding of children, and in some instances their activities are leading to the establishment of government sponsored programs.

There is considerable variation in the type of food provided. In the United Kingdom a complete hot meal is served, and about 52 per cent of the school children now participate in the program, as compared with 4 per cent in the prewar period. This is in addition to a milk-in-school scheme which was introduced before the war and in which a large percentage of the children continue to participate. In some countries preference is given to the distribution of milk only. This method of supplementing the diet has application in those countries such as Belgium and the Netherlands, in which traditional customs require the child to be part of the family group for all meals. Of interest is the School Breakfast recently instituted in Greece by the Ministry of Education and which is reported to be gaining in popularity. The meal consists of a cup of hot milk cocoa and a slice of milk raisin bread. The development of a palatable block or pellet of milk powder, sometimes with added flavoring, has proved useful and popular in districts where fresh milk supplies, or facilities for preparing food of any kind, are not available.

FAO's Nutrition Division has been collecting information on the programs which are in operation, and is planning a series of publications designed to encourage and assist governments in developing programs of a practical and feasible nature. Another aspect of our work relates to regional activities. Meetings of nutrition workers are convened to survey the nature and extent of nutrition problems in a particular area and to draw up recommendations which will serve as a basis for initiating or developing programs designed to improve nutrition in that area. For example, in

February, 1948, a Committee of Nutrition Workers from countries in East Asia was held at Baguio, the Philippines.[1] The diet in this region is characteristically low in calories, as well as in protein and other nutrients. The Committee recognized that it is impossible to provide adequate quantities of milk for the millions of children in the vast areas of Asia and that attention must be given to available foodstuffs of high nutritive value.

Incidentally, various projects have been undertaken in India to develop a satisfactory soybean milk and curd and to study their nutritive value as compared with that of cow's milk. In Bangalore an extensive experiment has been carried out on a group of school children. Preliminary results indicate that the soy products are somewhat inferior to cow's milk in supplementing the rice diet. However, there are considerable economic advantages and this work will doubtless have application throughout the rice-eating area.

The Baguio Committee recommended a type of free meal for school children based on cereals such as lightly milled rice, high extraction wheat, and millets, a pulse, small fish of which the whole body can be eaten and therefore provide calcium, a vegetable with preference given to green leafy ones, and oil, preferably an oil containing carotene. In the amounts suggested, these foods will form a meal of about 400 calories, which will contain the most essential nutrients. It can, of course, be modified in various ways in accordance with local conditions and the availability of various foods. Since that time, school feeding programs in general line with the recommendations of the Baguio Nutrition Committee have been developed in Singapore, Malaya, and Java.

Likewise, a Nutrition Conference held in Montevideo[2] in July, 1948, emphasized the urgent need for improving the nutrition of school children in Latin America. In most of the countries in Central and South America, malnutrition is prevalent among this age group and the Conference recognized that one of the best methods of controlling it is through the provision of school meals. It recommended that countries not at present in a position to organize a full service of school meals, should supply, temporarily at least, a simple "snack" which might consist of a glass of milk and "enriched" crackers. It also drew attention to the value of developing school gardens and orchards cultivated by the children.

Progress in implementing the recommendations of these conferences is being followed by FAO, and where necessary technical advice is being furnished.

Aside from this rather long-term program, FAO has been coöperating with other United Nations Organizations to further supplementary feeding projects in various countries where suffering and need are particularly acute.

In establishing the United Nations' International Children's Emergency Fund (UNICEF) in December, 1946, the General Assembly decreed that the staff and facilities of the specialized agencies should be utilized to the maximum extent feasible in order to reduce the personnel requirements of the Fund. It was in line with this decree that FAO and the Interim Commission of the World Health Organization convened a Joint Committee on Child Nutrition to advise UNICEF.[3] This Committee, composed of pediatricians and nutrition experts from various countries, met in Washington in July, 1947. In considering the foods which should be supplied by UNICEF to provide the greatest amounts of protein and other nutrients known to be generally lacking in the diets of pregnant and nursing women and children of all ages, special emphasis was given to dried skim milk. The recommendations of the Committee have been followed closely by the Fund

in developing its programs in various countries.

Since that time the Nutrition Division of FAO has given technical assistance to UNICEF in matters relating to nutrition and practical feeding programs. The work has been done both at headquarters and in the field. It has included advice to the Fund from the point of view of "nutritional economy," about the purchase as well as the use of foods for large-scale feeding programs for children and mothers. In Europe, the FAO Regional Nutritional Representative has acted as Chief Nutrition Consultant to the Fund in Europe. In visiting the various countries where the Fund is operating, he has assisted in the development of feeding programs. Another FAO staff member, attached to the Ministry of Coordination in Greece to establish nutrition services in that country, has helped to organize UNICEF's program there.

In Europe, attention has also been given to a program for making available a greater supply of indigenous milk of good quality for children. This milk is needed to replace the supply now being provided by UNICEF. A joint FAO/UNICEF field survey made in 1948 indicated a need for expanding pasteurizing plants and establishing milk drying plants, both of which would serve to increase the supplies of "safe" milk. UNICEF has been providing financial assistance and FAO technical aid to countries anxious to further such developments. Recent reports indicate that this scheme is progressing very favorably.

UNICEF activities have been extended to the Far East. Through the Nutrition Division, FAO has assisted the secretariat of UNICEF in establishing the basis of a satisfactory supplementary feeding program for countries in this region. During the past winter a staff member of the Division spent several weeks in the Philippines assisting with the organization of a demonstration child feeding program there. It is anticipated that similar UNICEF programs may be initiated in other countries in the Far East. Although only a very limited number of children may be included in them, it is felt that they will serve a useful purpose in demonstrating the value of school feeding and encouraging the development of this method of safeguarding the health of children.

Plans are now being worked out for UNICEF programs in Latin America where the need for practical programs to help combat the widely prevalent undernutrition and malnutrition is very great. It is hoped that some of the funds which UNICEF has allocated for work in Latin America will be devoted to demonstration child feeding and local milk improvement programs. Through its Nutrition and Agriculture Divisions, FAO will coöperate closely with UNICEF in carrying out these programs.

Despite the improvements which have taken place since the end of the war with respect to food and nutrition conditions, the world is still faced with serious problems. It is estimated that the world supply of foodstuffs in 1948–1949 is about 5 per cent above the pre-war average and at least 10 per cent above that of 1947–1948. But with the increase in population which has occurred in the last 10 years (an average of 20 million people each year), there is still less food available per head of the population than in the pre-war period.

Apart from long-range programs for expanding agriculture and trade in foodstuffs, one of the most effective methods which can be used to improve the state of nutrition of a population is the encouragement of supplementary feeding programs for the vulnerable groups—children from infancy through ado-

lescence, as well as pregnant and nursing women. The need for such programs exists, not only in poor and undernourished countries, but also in countries in which the available food supplies appear to be adequate. Even in the latter case, inequalities in food distribution, due to economic factors and poor food habits, may prevent large sections of the population from obtaining a satisfactory diet. The establishment of rational feeding programs in any country should be based on a thorough knowledge of the food supply and food habits of the people, as well as the nutrition situation such as can be gained by diet surveys and assessments of nutritional status. The close collaboration of administrators in the fields of agriculture, nutrition, and medicine is needed if children throughout the world are to have their rightful share of health—and happiness.

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"Peace Hath Its Victories"

"The Tennessee Valley Authority has been able to announce at the end of its fifteenth annual survey of the reservoir areas that no positive tests for malaria were found. Blood tests were made from 4,300 individuals in areas where positive tests and even high incidence had previously been shown. Every one was negative.

"This does not mean, as was carefully explained, that the scourge of malaria has completely disappeared from the area under TVA control. It does mean that in one generation it has ceased to be a determining factor in the life of the community. The same type of testing, fifteen years ago, showed almost a third positive. In some regions it was two-thirds. That could mean only that malaria, with all its debilitating effects, was endemic in the area. Each year the tests showed substantial gains. For the last four the discovered incidence has been less than one per cent. This year the test is dramatically and completely negative.

"Several factors have been at work to change the complexion of eastern Tennessee. The establishment of the State University at Knoxville brought in outside influences and changed modes of thinking. The whole program of TVA brought in different relationships of employment and gain and different possibilities in agriculture. The installation at Oak Ridge again brought in powerful influences to bear on these communities. It is easy, now, to see in this region the effects of increased purchasing power, of improved farming methods, of raised living standards.

"No other one thing, however, can better illustrate what has happened than this conquest of malaria. A community in which one-third suffers from the disease and its effects is a vastly different place from one in which the complaint is unknown. There is a different tempo in living, a different outlook on life. Malaria is an aspect of human misery and its conquest is a victory over unhappiness.

"What has been done by TVA in this field is an illustration of what is possible when scientific knowledge and determination are put to the great uses of peace. Life is enriched and progress is furthered. It is small wonder that the TVA program of malaria control has been made a model for similar efforts in other countries. It can serve also as an encouragement to us in other activities."

—*Editorial, New York Times,*
Nov. 8, 1949

The Health Officer and His Staff Receive the Foreign Visitor*

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A CITY set upon a hill cannot hide," someone observed long ago. Today, from nearly every country in the world, people are coming to the United States to study and to observe, to learn our ways of doing things. Last year our colleges and universities registered more than 26,000 foreign students. Industrial leaders from Europe—management and labor alike—come here to study our industrial methods.

Our field of public health is no exception. The nine approved schools of public health last year had 170 full-time students from other countries. This does not include students in public health nursing or in sanitary engineering, aside from those in schools of public health. The International Health Division of the Rockefeller Foundation gave 50 fellowships in 19 countries; the Institute of Inter-American Affairs, 35. Our own office in the Public Health Service had 70 fellows from Latin America, the Philippines, Greece, Germany, and Austria. The World Health Organization sent 183 of its fellows to the United States. Literally a score of other organizations in this country are offering fellowships to health workers abroad. Many governments are themselves sending people here for training in public health: India, Siam, Syria, Egypt, Liberia are examples. Each year the numbers grow. The totals are not large in themselves but the individuals are important to the future development of public health in their native lands.

Whether these people are entered in universities or spend a shorter time in travel, sooner or later the great majority come to a health department to see how it does its work. State and local departments should plan to take care of them. It is because such visits are of great interest to the foreign and the local health worker alike and because their numbers are growing that this article is written. We need to study the problem in order to make these visits truly valuable experiences for both sides.

Lest it be thought that I speak with the lofty detachment sometimes ascribed to Washington, let me explain that I served a decade in Lorain County, Ohio, and Cattaraugus County, New York, to both of which foreign visitors came, and I have worked in state departments in Albany and Hartford. In Washington, our office now sees 300 foreign health workers a year, referred by foundations, embassies, and the World Health Organization.

As of June 30 there were reported to be 1,291 full-time local departments of health in this country. Add the 48 states, any number of districts and some territories, and a substantial number of health officers with their staffs may soon be entertaining foreign visitors.

It is seldom, we hope, that the visitor descends upon the health officer un-

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awares. It sometimes happens, however, as in the case of a medical officer of health of Singapore who received an American physician who walked unannounced through the office door, took him to see some most ingenious antilarval drainage, and invited the physician and his wife home for tea. Most of us, however, learn of projected visits beforehand. With rare exceptions the foreign visitor is sponsored by some agency, which has given him a fellowship or which is arranging his program.

Our own office in the Public Health Service now makes the field arrangements for its own fellows, those of the United Nations (in the field of health), of the World Health Organization, and of various foreign governments. The Institute of Inter-American Affairs handles its own fellows and visitors from certain of the other American republics. The Rockefeller and Kellogg Foundations take care of their own grantees. The great majority of foreign visitors come through these four agencies.

All state departments of health should consider designating one of the staff to receive foreign visitors and arrange programs within the state. Otherwise a letter may go to the state health officer himself. Approach to certain large cities may be direct.

Whatever the channel, the health officer receives the inquiry—can he receive Mr. Foreign Visitor? This inquiry should come well before the proposed visit. Only a few large offices can receive visitors with a day's notice. For most departments the question should be raised one, two, or three weeks in advance. If the visitor is to have inservice training, arrangements should be made from one to three months ahead.

When Mr. Health Officer opens the letter asking him to accept someone from abroad he should find there certain definite information. His name, his country, his position there, his fields of interest, when it is planned to have him come, how long he can stay—how good is his English—these are a minimum. It is interesting to know, too, where he graduated in medicine, nursing, or some other field, and his experiences between graduation and his present work. These save questions later and may suggest interesting contacts.

To a letter of inquiry Mr. Health Officer usually replies that he will be glad to receive Mr. Visitor. But if the health officer and his staff are pressed with work, or have had many visitors recently, or illness or vacations interfere, or other situations obtain, it is certainly appropriate to decline.

Once the visitor is accepted, what plans should be made for his coming? Aside from a general discussion, should a detailed program be made beforehand? There are marked differences of opinion on this point among those who receive visitors. Some prepare itemized schedules days before. The visitor, it is understood, will arrive at 8:30 of a certain Monday morning. At 9:00, it is then planned, he will pay an introductory call on the health officer, at 11:00 he will be taken to another office, etc. All concerned write this on their calendars and arrange their other appointments accordingly. Nurses particularly are inclined to this procedure; and perhaps because they are accustomed to rather exact schedules, it works fairly well with them.

Others have had chastening experiences, especially with physicians. Our own slavish regard for the clock and the calendar does not obtain in every land from which our visitors may come. At the last place visited there may have been something of special interest which called for a longer stay. Perhaps the visitor went sightseeing over the weekend, or fell ill, or his train was delayed. At any rate, Monday noon comes before he arrives, or late Monday afternoon, or Tuesday. One visitor who was scheduled to spend two weeks with a certain de-

partment arrived on Friday afternoon of the second week. This is unusual, but many scheduled visitors are not found on the steps when the office is unlocked Monday morning.

The first conversation often reveals that the visitor has some additional interests that were not mentioned in the letter about him, or that he places special emphasis on certain points. Some health officers therefore prefer to wait until the visitor's arrival before making other than general plans. Then, on the basis of the letter from the sponsor, the interests and the emphases the visitor himself reveals, and the health officer's own knowledge of public health and of the strong points of his department, a detailed program emerges. Time is sometimes lost before the visitor can then start on his schedule, it is true, but this is soon made up.

There are times, of course, when the visitor is a well known foreign health worker and is coming for only a day or two, for definite purposes. For him a schedule must be prepared beforehand, and it may be expected to work.

Someone is liable to ask how many appointments are best made for the visitor's day. It is our experience that four is usually the maximum number, two in the morning, two in the afternoon. If more than this number are scheduled, there is a possibility that one especially interesting appointment may run over; then, since there is no leeway, the visitor is late for the next appointment, and there is general inconvenience. If the ordinary visitor sees too many people in one day, his mind may become a bit saturated and confused. It is better to allow some time between appointments for him to think over and digest the conference just finished, make notes, study literature just received, or think ahead for the interview to come.

What, someone else asks, about the visitor with inadequate English: A man who is obviously competent at home may be struggling with poor English; he and his host are embarrassed, and frustration and annoyance may result. Fortunately, such a situation is encountered less and less often. More and more people around the world are studying English. The agencies which give fellowships are stressing the importance to the individual of a ready and understanding use of English. Better tests are being devised, and their use extended, for measuring the candidates' English. At that, not all visitors will be equally proficient. Some understand only slow speech, careful enunciation, simple wording and are aided by frequent reference to printed material.

Visits vary so in purpose, timing, and duration that generalizations are sometimes difficult. We ourselves plan a visit of general observation before the visitor enters a school of public health. For this a small or medium sized local health department is selected. It is intended that the visitor see the scope and working of American public health. He should watch what the health officer does, the public health nurse, the sanitarian, the laboratory worker, visit the various clinics, etc., all without reference to his specialty. He is getting a general picture which will be of great help to him in school.

The summer following his school session he will be paying attention to his own field. Instead of a succession of visits of from three to five days each, covering as many departments as possible, emphasis is now placed on a longer stay in one department, followed by shorter visits to a number of others, for comparison with the first. In the longer period, possibly of a month or more, it is usually advisable for the visitor to be put to work as an intern in the department.

The older visitor, here for from three to six months of travel, may well have a longer stay in one place, studying all the aspects of our procedures in his field; while shorter visits in several other de-

partments will enable him to make comparisons and enrich his experience. He cannot, however, visit too many places. Some years ago Dr. Robert Lambert, then of the Rockefeller Foundation, observed that after three months their fellows seldom saw anything new. The law of diminishing returns begins to operate.

Some visitors, not appreciating this, like to see a large number of places, gathering hotel labels, as it were. It is natural for one to ask of the health officer host, "Where else do *you* think I should go?" and suggestions accumulate. The wise health officer makes his suggestions to the sponsor, who will appreciate them. They may only confuse the visitor, to whom fields in the distance may seem still greener than the one about him.

A question that frequently comes up in the mind of the health officer is: "What entertaining should we do?" That is a natural and a proper question. People like to entertain. Those of us who have been abroad have happy memories of the receptions we met here and there. Yet only the occasional health officer is fortunate enough to have an entertainment account at his disposal. For most health workers it is a matter of drawing on personal funds already well obligated. Several suggestions seem in order. For one, it is not necessary to reach for the luncheon ticket; most visitors have comfortable travel accounts. Let any entertaining have a personal touch. The health officer may take the visitor to his Rotary or Kiwanis Club, which is pleasant for everyone. Most foreigners appreciate greatly an invitation to a home. One of my painful memories is the statement of a student about to leave that in a year in this country she had never been invited to an American home. She was not complaining; I had asked her a direct question. Fortunately, her experience is not typical. Though the departure of the household servant makes dinner parties sometimes difficult, an afternoon tea or an evening call is possible and pleasant. One visitor told with appreciation of evening bridge games in the home of his laboratory host. Our picnics seem to delight our foreign students. Both the informality of the occasion and the skill of the local staff in frying a hamburger are matters they long remember. Most field visits are made in summer, so that these are practical suggestions. A concert or a baseball game may appeal to your guest. Whatever entertaining is done, the amount expended is not significant but rather the friendliness shown.

The visitor may enjoy the special features of the region, such as beautiful scenery, apple orchards, cotton or wheat fields, but a businesslike visitor will not cut into working hours for side trips.

Many of our visitors have definite religious convictions and are accustomed to attend Catholic or Protestant services on Sunday. It was humbling to me to have an Indian Methodist say she would prefer no appointments on Good Friday. In entertaining it is sometimes well to remember Moslem or Hindu customs on pork or beef; a friendly inquiry does no harm and may prevent embarrassment.

The Committee on Friendly Relations with Foreign Students suggests that if the visitor is more than a short time in a place he be brought into contact not only with health workers in his own fields of interest, but also with other community activities. The home and farm bureaus in rural counties are examples. Does the community have a forum, or a discussion group? Some visitors are asked to speak before luncheon clubs or Sunday schools or high schools. These general glimpses of American life are valuable. A while ago a Chinese doctor was sent to study hospital administration in North Carolina. From letters we received later, both from him and from the local sponsor, it was evident that

both sides thoroughly enjoyed his visit.

It is more and more possible to send to a local department a group of two or three people with similar interests. This is practical and time-saving. In a larger group, however, unless it is carefully chosen, differences of interest may appear and be confusing. The seven member commission of the WHO studying VD practice in this country was carefully selected and has just completed a successful program, traveling together.

People sometimes ask: Why should we take the time to receive visitors? The answers are many. As scientists we want to share information with others. It is worth while, too, in our own interest. In the past we have relied on quarantine and distance to keep us free from major epidemics. Today, when students leave Manila on a Friday night and are in Washington for Sunday tea, distance and quarantine are not enough for our protection. To paraphrase Abraham Lincoln, this world cannot long remain half well, half sick. We must improve health conditions in sore spots anywhere. Each health department receiving a foreign visitor has an opportunity to help in the improvement of health in another country. If the sword of the warrior against disease is forged in the school of public health, it is sharpened in his field visits.

The door is now opening for some of our health workers to go abroad themselves, under Fulbright or WHO funds. They will then meet, as many of us have already met, the help and the hospitality of their foreign colleagues. Let us extend the same help here.

These health workers who have visited us are people of growing importance in their own countries. Today, there are increasing numbers of people in every country who have been here, who know our ways and like us. They often have great influence at home and appear at international meetings as delegates. There they understand our positions and coöperate with us. They are people whom you, or the health officer before you, helped to train and won as friends.

Thoughtful opinion in this country is increasingly convinced that in the world today we need friends and want them. The past decade has taught that lesson. Nowhere is coöperation and friendship easier than in the field of health. Whether we ourselves ever travel abroad or not, we have an opportunity to share in this. We can aid in the development of health work in foreign countries or in places so distant that we have heard little of them since school days. We can win friends from far away for our country. We can broaden our own horizons and help safeguard the future for our children. This is the opportunity that opens when health officers and their staff prepare to receive the foreign visitor.

Accident-Proneness: A Critique

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THE concept of "accident-proneness" has been intensively discussed in the modern psychoanalytic literature. Its appearance in a recent editorial in the *American Journal of Public Health*[1] and in a symposium in *Public Health Reports*[2] calls for critical analysis of the public health implications of this thesis.

As developed by Dunbar, Alexander, Rawson, and others, the concept of "accident - proneness" states that the majority of accidents occur as the result of *subconsciously intended* actions on the part of certain personality types. It is suggested that accidents are caused by deep-seated psychological conflicts in the individual, rather than by physiological or environmental conditions.

Accidents do not just happen

There is little doubt that accidents are only infrequently the result of pure chance. The emphasis given by the psychoanalysts to this point is a contribution of major importance. Accidents represent the interaction between man and his environment, when the condition of one or both of the interacting elements is such as to increase the probability of an untoward result. Assuredly, "accident-prone" individuals exist—but so do environmental safety hazards. It is as foolish to deny the contributory role of the environment as it is to deprecate that of the individual.

All accident-proneness is not psychological

All accident-prone individuals, however, are not necessarily characterized by personality disorders, as implied by the proponents of this thesis. Individuals who have unusual predilection for injury may reveal a vast number of pertinent *biological conditions*—such as fatigue, transient emotional stress with resultant inattention, impaired vision or hearing, underlying disease, etc. Moreover, the individual cases of carelessness and incompetence that may be psychologically determined, reflect immediate economic, social, or domestic pressures as well as complex psychopathology originating in early life. The first point is, then, that the accident-prone individual is not *always* a repressed or frustrated person who "subconsciously intends" the injury.

Environment plays a basic role

On the other hand, the insistence that most accidents are "caused" by neurotically motivated individuals relegates to a position of minor importance the role of environmental hazards. Accidents do reflect—and in wholesale manner—defects and inadequacies of industrial equipment, of housing, of traffic systems, of play areas, and of many other remediable conditions of daily life. This aspect of the accident problem is investigated in more detail below.

It is, then, the *overemphasis* upon hidden psychological motivation and the resultant minimizing (even when unintentional) of physiological and environmental factors which causes concern with the Dunbar-Alexander theory of accident-proneness. The overemphasis is not merely an inference. Alexander, in fact, states that "*most* accidents are unconsciously intended."[3] The A.P.H.A.

editorial summarizes this concept by stating that "the *vast majority* of accidents . . . are in a subtler sense determined by underlying trends of human personality."[1] (Italics added. E. R. W.) The entire event is transferred from the real world of persons and things to the disembodied arena of an individual mind.

Implications of the psychoanalytic concept

The dangerous consequence of this thesis is to restrict accident prevention efforts to the appraisal of personality types and the removal of "susceptible" individuals from the potential accident situation. Indeed, Alexander specifically states[3] that "the primary measures must be directed toward the person." He further states that since intensive psychoanalysis and psychotherapy would be the only effective means of handling such persons, and since these are impractical as mass measures, "recognition" and "removal" of designated individuals are the only feasible methods of accident prevention.

It *is* important to reassign workers who have a susceptibility to accidents to less hazardous jobs. This can be done only on the basis of careful records, and these should follow study of accident rates among the replacements. Safeguards must also be set up so that workers are not downgraded or fired under various pretexts related to this concept.

This procedure, however, is applicable only to a limited number of workers. It is by no means clear just how the supposedly accident-prone individuals in our society are to be removed from their involuntary contact with slum housing, icy pavements, drunken drivers, etc.—or even from their contact with difficult occupations in a period of job scarcity. The corollary of a concept that attributes most accidents to subconscious intention on the part of certain individuals is the relaxation of efforts to affect action of industrial managers, automobile manufacturers and used car dealers, city planners, housing authorities, and the like.

This shift of emphasis from environmental hazards to personality factors is fraught with social danger. A grim chapter in the history of the Industrial Revolution is that which deals with the crippling and killing of thousands of workers who were exposed to the unguarded machines, the condemned mine shafts, the ill-lighted sweatshops of the emerging factory system. One of the great social achievements of our time (still far from complete) is that of Workmen's Compensation legislation, which—after intense struggle—has taken the responsibility for occupational injuries off the back of the disabled worker and has placed it on the owner of the plant. Amazing progress in industrial hygiene and safety was stimulated directly by these laws. A reading of Dr. Dunbar's works on "accidentitis" makes one apprehensive lest some employers attempt to alter the current legal protections for the worker by introducing this personality concept as a new reason for the old practice of denying compensation. It would be a giant step backward if an injured worker's compensation were to be denied on the grounds that the accident was due to his "impetuous" and "resentful" personality, rather than to the complex of contributory causes.

Lack of proper evidence for the psychological entity

There is much more that is troublesome in this concept that "most" accidents are the result of unconscious behavior on the part of certain personality types. Proper scientific evidence for the existence of a specific psychological pattern seems to be lacking. As stated by King[4]:

> The finding that a relatively small percentage of the accident group is responsible for a high percentage of the total accidents does not constitute proof of the existence of accident

proneness as a clinical entity. It does not identify biological characteristics invariably associated with this special susceptibility, nor does it preclude the possibility of a greater exposure of the "accident prone" group to hazardous situations. The test of the hypothesis lies in the success or failure to identify causal physiological or psychological characteristics, or their combination, present in individuals showing a high frequency of accidents, and absent or present to a lesser degree in "accident free" individuals with a comparable background of experience.

Accidents as the result of multiple factors

A wealth of data is available to show the interdependence of many coexistent factors in the causation of accidents. The epidemiological approach of Gordon [5] stresses the complexity of factors—seasonal, demographic, genetic, biologic, geographic, etc., as well as psychologic. His conclusions are pertinent to this critique:

> That accidents and disease, as they affect groups of people, so frequently show similar distributions is no reason to assume identical causes; indeed, the expectation is that they are different. The illustrations presented here were purposely drawn from a wide variety of accidents and diseases, to the end of demonstrating that both great classes of morbid conditions of man are governed by broad biologic laws; that in their action on groups of people they are the resultant of the total forces within a universe, of an ecologic entity. . . . A wide range of conditions commonly contributes to the prevalence of an injury.

The time trends and statistical distributions of available accident data seem to support the conclusion that no single type of personality configuration can explain the majority of accidents. The National Safety Council [6] has reported that non-motor vehicle accidents have declined consistently since the turn of the century, while accidents due to motor vehicles have steadily increased in proportion with the greater number of vehicles in use and with the increasing congestion of traffic ways. Studies of occupational injury [7] constantly reveal that certain industries (e.g., mining, lumber, construction) have significantly high accident rates. The overall accident rate in industry dropped steadily from 1936 to 1941, but then rose abruptly as conditions of wartime production developed.[8] This change was attributed to such factors as fewer replacements of parts, crowding of equipment, unsafe wearing apparel, fatigue, new unskilled workers, and the like. Another report [6] showed that the rate of occupational injuries increased disproportionately as the length of the working day exceeded the standard of eight hours. A survey by the Travelers' Insurance Company indicated that three-fourths of all cars involved in accidents had serious defects involving headlights, tires, brakes, etc. Brittén [9] has analyzed National Health Survey data to show the inverse relationship between rental value of housing and home accident rates. (This invites attention to the "proneness" of the substandard housing environment as far as accidents are concerned.) It is difficult to reconcile the thesis of psychologically determined accident-proneness with such diversified environmental relationships as these studies demonstrate.

This tendency of psychoanalysts to attribute universality to observations made in circumscribed situations is well scored in a recent psychiatric review [10]:

> A dominant defect of the Freudian psychoanalytic discipline is to take or mistake a part for the whole, unwarrantedly to assert that a complex or a number of complexes, which may or may not be present, are causative in human behavior.

"Accidentitis" would seem, then, to be a poor resolution for the diverse problems of mine cave-ins, inadequate fireproofing, impaired and uncorrected vision, etc. Neither submerged guilt complexes nor overly compulsive behavior reactions are sufficient explanation for the high incidence of accidents among workers exhausted by production speed-up or among children forced to the streets for play space. The psychoana-

lytic explanation is inferior to the biologic when the excessive accident rate in the very young and very old is analyzed. One wonders if the studies of truck drivers (which show that a relatively few drivers were responsible for a large proportion of the accidents) carefully examined the distribution of these individuals according to types of routes covered, amount of night driving, unrelieved hours on the road, etc.—*before* concluding that personality type (sic) was the decisive factor. Individual case histories —however dramatically presented—are inadequate substitutes for painstaking analysis of accident data, which show accidents to be regularly concentrated in the hazardous occupations, congested roadways, and substandard dwelling places. Is it to be assumed that the so-called accident-prone personality type has an affinity for these particular surroundings?

CONCLUSIONS

An accident is the result of undesired and unanticipated—but preconditioned —interaction between the individual and his environment. Psychological motivations undeniably contribute to accidental occurrences. It is, however, essential that we continue to emphasize social control of the hazardous environment, correction of physical and mental impairments, and education for safety. To depend primarily upon detection and removal (or psychoanalysis) of particular personality configurations is neither warranted nor wise in light of the incomplete state of our present knowledge of accident-prone behavior patterns. There is serious need for statistically sound and scientifically convincing data to test the psychoanalytic theory. Until proof of accident-proneness is produced from study of mass accident distributions—and not only from intensive analysis of individual cases—the factors in accident prevention which *do* have a scientific basis must not be displaced. As in any experimental work, the theory must be subjected to the most rigorous tests before it can be generally accepted. As it is now presented, the "accident-prone" concept leads to defeatism and ultimately to reactionism in such fields as social insurance, industrial hygiene, housing, and city planning.

Successful accident prevention must recognize the *total* ecologic complex. "Proneness" to accident is at once an attribute of the disturbed personality, the impaired physiology, and the unsafe conditions of environment.

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Engineering Aspects of Home Accident Prevention*

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THE problem of home accidents is a blind spot in the eyes of health agencies. Long ago the public health agencies could have taken the initiative in the prevention of home accidents because of their close relationship with the individual and his home environment. Accident prevention is within the scope of the public health objectives of preventing disease, prolonging life, and promoting physical and mental efficiency and well-being. Since public health personnel are trained in the fundamentals of controlling or eliminating health hazards, they can readily adapt these principles to home accident prevention.

The present incidence and prevalence of home accidents challenge every effort for their control. Accident facts for 1948 [1] released by the National Safety Council indicate that approximately 98,000 persons were killed in all types of accidents and 10,300,000 received disabling injuries, of which 370,000 resulted in some permanent impairments. The cost in salaries lost, increase in insurance overhead, medical care, etc., was estimated at $7,400,000,000 for the year.

As a cause of death, accidents rank fourth in the United States, exceeded only by heart disease, cancer, and cerebrovascular diseases. Viewed strictly from the effect on the national economy, however, accidents form the leading cause of death. This was illustrated by Dr. Frank G. Dickinson,[2] Director of the Bureau of Medical Economic Research, American Medical Association. Using as measures the years of life expectancy lost and productive years lost, he showed that accidents have become economically more significant than heart disease, cancer, and the cerebrovascular diseases, which are primarily degenerative diseases.

Although the death rate for accidents in 1948 of 67.1 per 100,000 population was the lowest recorded in the years for which records are available, home accidents alone, of all categories of accidents, showed an increase. Up to 1947, motor vehicle accidents were the leading cause of accidental deaths. In 1947, and again in 1948, home accidents had become the number one killer in the accident field. In 1947 approximately 1,800 more persons were killed in the home than were killed on the streets and highways of this nation. In 1948 this differential increased to 3,000.

Home accidents alone rank as the ninth leading cause of death with 35,000 deaths. Add to this figure the approximate 5,250,000 persons injured—or over one-half of all accidental injuries and include the 140,000 who suffered permanent impairments. Then we realize we are faced with a most serious problem, one which cannot be met by any one professional group in the health field. It is a challenge to every health depart-

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ment and will require the services of the entire staff. Only by coördinating all our efforts can we show progress in the reduction of morbidity and mortality due to home accidents. Public health engineers, especially, have an opportunity to play again a leading role in the control of a serious health hazard comparable to the one played in the control of malaria and typhoid fever.

Basic causes of accidents can be classified under two major headings: those related to environmental factors and those involving human factors. They frequently result from the combination of environmental hazards and human errors. This intermingling of environmental with human factors makes it difficult to separate them and assign a primary significance to one and a contributing role to the other. A factor which adds to this difficulty of separation, and one which every investigator should recognize, is that human errors are often made glaringly evident by the accidents while coexistent environmental hazards are overlooked or considered too unimportant to be reported. Accidents may be prevented by the control of either human or environmental factors. We can help to attain ideal safety by the maximum practicable reduction or elimination of every environmental hazard. We may consider the engineering problem as one of creating a "fool-proof" environment which will make it easier for an individual to learn and practise only safe habits.

The Kansas State Board of Health and the Nassau County Department of Health[3] have conducted studies of accident fatalities over a period of years. The report forms used were not designed primarily to collect information concerning unsafe acts and unsafe conditions contributing to accidents, but these contributing factors were considered worthy of mention, and were included in the reports: slippery floors, loose rugs or carpeting, dark or poorly lighted hallways, defective heating equipment, and insecurely fastened screens.

The National Health Survey findings[4] indicated that accidents in homes are frequently the result of specific hazards associated with dilapidation and other factors involved in poor housing, and that frequency of home accidents decreased as the rent or value increased. It is realized that rent is not a good measure of environmental hazards, but it does help to measure poor housing environment. A rather interesting finding showed a 70 per cent increase in the accident rate as rent declined from $30 or more per month to less than $10 per month in rented multiple dwelling units.

The Cook County Study,[5] limited by nature of study to families in the lowest income group, showed that both mechanical and personal factors were included in approximately 64 per cent of the home accidents.

The Kansas and Nassau statistical studies indicated that 60 per cent of the fatal home accidents were due to falls, with falls on the same level exceeding falls from one level to another. Fire caused 14 per cent of the fatalities; 10 per cent were due to suffocation or strangulation; poisoning by gas, poisoning by liquids or solids, death from firearms, and drowning exceeded 2 per cent. In studying accident sites, it was found that the most dangerous place in the home was the bedroom where 32 per cent of the accidents occurred. The second most dangerous place was the yard with 14 per cent of the fatalities. Inside and outside stairs together accounted for 13 per cent. The kitchen, living room, and bathroom followed in that order.

From the above studies, it appears that engineers can direct their efforts in home accident prevention into two main channels. One is the reduction or elimination of hazards either built into the home in the planning, design, and construction of the structure or added

thereto by the householder. The other is the control of hazards associated with the construction, installation, and operation of household appliances and equipment.

Home accidents due to collapse of a structure are few and far between and fade in significance when studied in relation to the contribution to accidental injury and death from specifically dangerous areas within the home. It has been agreed by eminent architects that it is as easy to build hazards out of, as into, a home. Stairs can be designed with treads of equal width, risers of equal height, a sturdy handrail, and a gentle slope so as to minimize falls; yet the householder by adding a torn rug or an insecurely fastened covering, can immediately make this stairway a hazard. Fireproof or fire stopping construction can localize fires. Electric outlets can be placed so that the chances of electrocution or burns are reduced, especially in bathrooms, laundry rooms, or wherever we have the combination of electricity and water. The design of sunken rooms with a half or full step between rooms presents a dangerous tripping hazard.

Household appliances and equipment have made household tasks easier and less wearing, but have, on the other hand, increased the exposure to new hazards. Careless operation of a gas range can convert it into a deadly weapon. Failure to provide a relief valve on a hot water boiler in a home in Detroit converted the boiler into a rocket which smashed through two stories of the home and landed a half block away.

Several hours could be spent in enumerating and illustrating the various environmental hazards in the home. Many are so simple that I need not expound them to a group of engineers, yet they continue to cause accidents to the householder who does not realize their danger or who considers that accidents always happen to the other fellow.

A comprehensive inspection form was developed recently as part of the Home Accident Demonstration Project in Kalamazoo, Mich. In this form, environmental hazards are itemized and safety standards are presented in detail so that they can serve, not only to indicate environmental hazards, but to assist in educating the householder in the recognition of unsafe practices in the home. I hope all of you will take the opportunity of becoming familiar with this form.

Safety is not merely a concept or a label. It is a way of living, whether it be in the home, on the street, in the school, or in a place of employment. Industry has greatly reduced its accident rates and fatalities through engineering and education to the extent that 65 per cent of fatal accidents to our labor forces now occur outside the plant. It is not enough to practise safety within the place of employment and then forget it immediately upon leaving there. It must be a 24-hour-a-day habit. By concentrating our efforts on the prevention of home accidents, we can extend the period of safety consciousness of each individual.

Accident prevention is not a new activity in environmental sanitation. Actually we cover safety to a varying degree in the activities of almost every current program. For example, in making an inspection of a water purification plant or swimming pool, the location of the chlorination equipment in a separate room, with adequate ventilation and a readily available gas mask is recommended. In sewage treatment plants we condemn use of open flame where exposure to gas is evident. Fire hazards, improper equipment and appliances in food establishments are observed and corrections suggested. The list is extensive, yet safety has been relegated to a minor role in an inspection, and safety in the home has not even been considered.

I am not recommending that we curtail or drastically cut our current public

health activities to concentrate solely on home accidents. I do recommend that while we are collecting a water sample or answering a nuisance complaint—the health department services most familiar to the public—we might well offer to make a home safety survey since the chances of injury or death are far greater from accidents than from typhoid or any of the enteric diseases. The safety survey might also bring to the attention of the people the activities actually provided by a health department. I am suggesting that, in view of our morbidity and mortality statistics, we reëvaluate the significance of our activities in order to concentrate our programs and our major efforts on the most vital problems.

Home accident prevention should be included in the activities of every health department. The engineering program could encompass such activities as the following:

1. Coöperation with home builders, contractors, and architects in order to improve the planning, design, and construction of new dwellings or remodelling of old ones.
2. Provision for a home builders' counselling service to families planning to build or remodel.
3. Securing the coöperation of hardware dealers in explaining safe operation and maintenance of equipment to the householder before the equipment is used.
4. Working with dealers of household appliances and plumbers on proper installation of equipment to eliminate the hazards commonly resulting from improper installation.
5. Obtaining the coöperation of manufacturers of household appliances and equipment to make them fool-proof.
6. Offering voluntary inspection services of the entire premises for safety hazards to anyone desiring such services. The form mentioned previously could be used as a guide for such inspections.

More research is needed on circumstances of non-fatal, as well as fatal accidents. As research presents up-to-date information on the relative significance of the various environmental hazards in relation to their contribution to morbidity and mortality, emphasis on control can be varied accordingly. Meanwhile we can utilize the knowledge at hand to guide us. A housing program incorporating the American Public Health Association housing appraisal survey affords an opportunity to coördinate a study of environmental hazards and the prevalence of home accidents. A rat control survey presents still another opportunity to tie in an inspection of this nature.

Because safety is a way of living, it must become an integral part of people's lives. It cannot be forced onto a community, but must be stimulated and fostered by the service we can offer in creating a safe environment in order to make the safe way of living a reality.

A home accident prevention program can and must be based on a policy of service to every individual in the community. By putting this program into effect, we will be instrumental in reducing the currently increasing contribution of home accidents to our national morbidity and mortality.

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Psychosomatic Approach to Venereal Disease Control*

Chronic Gonorrhea Repeaters

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RECOGNIZING the social implications of venereal disease, many workers in the field have been interested in seeking precipitating causes in the backgrounds of the venereally infected, or in finding clues which would help in making the program of prevention more effective. The problem has been approached from different angles, but all particularly seek answers to the question, "What traits appear characteristic of those persons who seem prone to the sexual promiscuity which leads to venereal disease?"

Venereal disease is not exclusively a medical problem. Recently sociologists and psychologists have been invited by medical men to aid in finding more effective curbs on these dangerous, contagious diseases, by making an attempt to raise the standards of social responsibility of the public through a more adequate understanding of the role of sex in human dynamics. To achieve these multiple goals, adequate techniques need to be devised leading toward deepened understanding. This, it is hoped, may lead to more effective educational and control methods.

In the treatment of venereal disease, the mental attitude of the patient must be considered. In many patients, venereal infection stirs up feelings of shame and panic. All the social disapproval of the civilized environment is directed against them. Their mental attitude may include all the frustration, guilt, and confusion which reflect poorly organized ego ideals.

The manner in which the patient is handled may be an important factor in his subsequent life adjustment. It may determine which alternative the patient chooses, (a) to handle his sex life more adequately and efficiently in the future, with a corresponding rise in social responsibility, or (b) to continue to make mistakes, deal haphazardly with the important sex factor in his social adjustment, and undergo repeated infections.

The literature contains only scant reference to this problem. One of the most complete studies was made in 1945 by venereal disease control officers in the Royal Canadian Army.[1] The study showed that venereal disease patients were largely of an inferior personality type. It was the conclusion of Watts and Wilson that if a man gets venereal disease infections two or more times, it

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is indicative of weakly organized personality, and the case should be thoroughly investigated by a psychologist or psychiatrist.

In a study made on fifty venereally infected female prisoners in England, venereal disease was recognized as a symptom of social maladjustment and psychiatric supervision or treatment suggested as a controlling factor in the prevention of further sexual promiscuity.[2] An interesting project undertaken at the San Francisco City Clinic in 1943 combined a psychiatric service with the city clinics in an effort to determine whether or not psychiatric help might be effective in diverting young women from venereally contagious situations.[3] It was felt that treatment and control potentialities might be better understood if a study of the characteristics of the patient was made. Three hundred and sixty-five women were referred to the Psychiatric Service where they were interviewed by psychiatrists and psychiatric case workers and given a psychological examination. A particular aim was to develop criteria for prognosis in good sexual adjustment and amenability to psychiatric treatment. Another study was made more recently in 1946 by Weitz and Rachlin at the Midwestern Medical Center at St. Louis, Mo.[4] With a staff of five psychologically trained workers, they made a psychological study of sexual promiscuity and venereal disease. Five hundred women patients in attendance at the clinic were observed and tests made over a 6 month period. Mental and educational retardation seemed commonly characteristic of the venereally infected group. The authors insist that the mental limitations of the average clinic patients be recognized and used to explain the usual difficulties met with, such as missed treatments,

TABLE 1

Showing Means for the Group of Fifty Gonorrheal Repeater Patients as to IQ's, Education and Age

Item	*No. Cases*	*Range*	*Mean*	*Median*
Intelligent Quotient	50	52–117	78.86	76.50
Age	50	20– 40	24 yr. 3 mo.	24
Education	50	4– 12	8 yr. 7 mo.	9

Range — describes the range in which the cases lie, showing maximum and minimum.

Mean — representing the average number for the entire group. This is found by dividing the total by the number of cases. This represents one sort of average, but should be compared with the median in most cases.

Median — representing the average derived by the individual who stands midway between the maximum and the minimum.

TABLE 2

Showing Environmental Characteristics of the Chronic Gonorrheal Infection Group of Fifty Patients

Item	*Number*	*Per cent*
Birth: Chicago	5	10
Mississippi	14	28
Other States	31	62
Abnormal Childhood	28	56
Only Child	11	22
Education: Grammar School or better	34	68
Less than eight years	16	32
Type of Work: Skilled	7	14
Unskilled	43	86
Irregular Work History	13	26
Heavy drinking	12	24
Known to Police	11	22
Living Alone	26	52
Physical Trauma (accident, serious illness)	13	26

broken appointments, and failure to report for follow-up service. These persons, for the most part, do not recognize the dangers connected with venereal disease to the individual and to society.

PRESENT STUDY

The workers at the Municipal Social Hygiene Clinic of the Chicago Health Department undertook to make a psychological evaluation of venereally dis-

TABLE 3

Showing the Marital Status of Fifty Patients Used in the Study

Item	*Number*	*Per cent*
Single	25	50
Married	25	50
Married with Children	17	34
Separated or Divorced (of married cases only)	15	60

TABLE 4

Showing Military Service Status of the Group

Item	*Number*	*Per cent*
Military Service	30	60
Medical deferment from Military Service	12	24
Psychiatric deferment from Military Service	2	4
Under age for Military	6	12

TABLE 5

Showing the Status of the Group According to Intelligence Quotients

Item	*Number*	*Per cent*
Intelligence:		
Bright Normal (110–120)	2	4
Average (91–110)	11	22
Dull Normal (80–90)	8	16
Borderline Defective (68–79)	13	26
Defective (below 68)	16	32
Total Below 90	37	74

TABLE 6

Showing Personality Characteristics of the Group of Fifty Patients According to Wechsler's Patterning

Item		*Number*		*Per cent*
Personality Trends:				
1. No personality maladjustment or psychopathic trends		17		34
a. Without mental retardation	7		14	
b. With mental retardation	10		20	
2. Tendency toward personality maladjustments		11		22
3. Positive Psychopathic Trends		22		44

TABLE 7

Comparison of Mental Deficiency Findings in Four Studies

		Number	*Per cent*
1. Watts and Wilson	VD Patients in Canadian Army	212	20
2. Lyon Study	Promiscuous VD females (intelligence findings on 105 only)	365	6
3. Weitz and Rachlin	Female VD Clinic patients	500	32.6
4. Present Study	Male Gonorrhea Repeater Clinic patients	50	32

eased patients. It was proposed that the first project would be the evaluation of chronic gonorrhea repeaters, that is, those patients who had had three or more gonorrhea infections within one year. This group of patients averages 30 per cent of all patients found in Chicago infected with gonorrhea. It has long been noted that such patients when coming to observation appear to be of lower than average intelligence. In discussing sexual problems with the patients, it was evident that they did not have a proper appreciation of their situation. Some of these patients who had more than three gonorrhea infections per year were referred for psychological interviews. It was hoped that this method would ascertain at what level of intelligence the patient was functioning and what his traits and characteristics would be.

This preliminary report summarizes the first phase of this project. The results included herein have been obtained on a total of 50 male patients between the ages of 20 and 40. Only 10 per cent of this group were native Chicagoans; the remaining 90 per cent had been residents of Chicago for an average of about 4½ years.

A short mental examination was administered in conjunction with the Wechsler-Bellevue Intelligence Test, Form I, excluding the vocabulary test. The results have been tabulated in percentages, as it was felt that this would be the most efficient method of handling the data. Means for the age, intelligence quotients, and education have also been presented.

RESULTS

It was found that the average age of the gonorrhea repeater frequenting our Municipal Social Hygiene Clinic was 24 years, that on the average such repeaters had a grammar school education or better, but that their intelligence quotient was below the established average of 90 to 110. In 56 per cent of the cases there was evidence of abnormal childhood conditions, such as death of one or both parents before the age of 15, separation or divorce of parents. It is possible that these factors may have contributed to the transitory habits of these patients, causing them to leave home early and seek the bigger cities.

There was an even distribution of married and single subjects, but it is of interest that, of the married group, as high as 60 per cent were separated from their wives or reported difficulties in their marital relations. Even among those patients who claimed that marital relations were good, there was a high frequency of extra-marital contacts. Such poor adjustment to married life would appear to be evidence of personality deficiencies.

Sixty per cent of the patients served in military units during the war. They did not seem to have benefited from the educational features which were part of the venereal disease prevention program of military life. The majority of the group, whether single or separated from their wives, lived alone and were employed in some type of unskilled labor. Twenty-two per cent had been known to the police at some time.

The Wechsler-Bellevue Intelligence Test showed 74 per cent to have an intelligence quotient of less than 90, noted by Wechsler as the lower limit of the average group. The largest single group was in the defective class (32 per cent), with IQ's below 68. Twenty-six per cent of the gonorrhea repeater group of patients showed intelligence of the borderline defective variety. There were 16 per cent in the dull normal category (IQ's of 80–90) while but 22 per cent achieved intelligence quotients in the average class (see Table 5). The mean for 50 cases was 78.86 with a median of 76.50. Both these figures indicate intelligence of the borderline defective type.

These results apparently concur with those of other investigators. Watts and Wilson, in their study of the venereal disease patients in the Royal Canadian Army,[1] found 20 per cent of the group to be mentally retarded. There are certain selective factors present in choosing army personnel, and not many individuals of low mentality are admitted into military service. In this study also it was noted that 95 per cent of the group were emotionally or intellectually handicapped. In fact, they were largely of the personality type known as psychopathic personality, that is, persons who, though apparently normal, are psychologically unable to make sound social or moral judgments. In the study of Weitz and Rachlin at St. Louis, Mo.,[4] 32.6 per cent of the group of 500 venereally diseased female patients showed a mental deficiency which warranted protective institutional care. The results of the various studies are compared in Table 7.

An attempt was made to evaluate the test results on the Wechsler-Bellevue Intelligence Test according to Wechsler's clinical patterns.[5] It was discovered that in 44 per cent of the cases, the patterns of the patients' performance on test items concurred with the group described by Wechsler as Psychopathic Personality. Twenty-two per cent showed a tendency to personality maladjustment.

We felt it would be expedient to divide the clinic patients into three groups:

1. Those showing no evidence of any psychopathic traits or personality maladjustments
   a. Without mental retardation
   b. Showing some mental retardation
2. Those showing a tendency toward personality maladjustments
3. Those showing definite psychopathic traits.

Then further treatment could be adjusted in accordance with the category in which the patient was classified.

CONCLUSIONS

The clinical group of gonorrhea repeater patients is below the average in intelligence. For this reason, a different approach in the health education program for venereal disease prevention and control is indicated. It is questionable whether persons who are mentally retarded and who have psychopathic personalities learn by experience or are amenable to common sense advice. The aim should be to provide guidance and supervision for at least the mentally retarded, including psychotherapy, depending upon the patients' capacities. It is also important that the educational material distributed should be supervised and checked by psychiatric workers so that it will be within the intellectual level of the recipients.

It is felt that Group 3 with the present limitations in knowledge of the treatment of psychopathy as well as the scarcity of adequately trained professional personnel would not be the group most productive of good treatment results in large V.D. clinics. However, persons in Groups 1 and 2 can probably be salvaged and improved by the correct approach, thereby decreasing the reservoir of infection. If Groups 1 and 2 were further classified as to intellectual level, therapy could still further be individualized. Patients who show evidence of personality maladjustments (Group 2) and who are of average intelligence, are in need of individual psychotherapy, and can probably benefit from psychological help and guidance in their social adjustment, recognizing that their sexual promiscuity is symptomatic of some underlying personality disturbance. Patients in Group 2 who are of defective intelligence might receive more benefit from group psychotherapy, in which an understanding of the venereal preventive measures and simple solutions to personality problems can be presented to the group. The difficulty of securing qualified personnel for group psychotherapy is not to be minimized. Likewise with Group 1, those with higher intelligence would receive individual therapy;

those of lower intellectual endowment may be reached by group psychotherapy.

The assistance of psychiatrists, psychiatric case workers, and psychologists in venereal disease clinics should be encouraged, and they should generally be given a place in the treatment of venereally infected patients. It is believed that these workers are able to contribute largely to the efforts of the patients to rehabilitate themselves. Further studies have been planned to show the invaluable aid which can be given by the psychiatrist who should see almost every venereally infected person before or after the somatic disease has been treated. By using a psychosomatic approach to the problem, a more complete prevention program probably could be effected.

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Johns Hopkins Reorganizes Medical Structure

According to an announcement recently made by President Detlev W. Bronk, President of Johns Hopkins University, Baltimore, the Johns Hopkins Hospital, Johns Hopkins University School of Medicine, and the School of Hygiene and Public Health, together with the Welch Medical Library will for the first time be combined under a single head to provide more effective integration of all medical activities.

Lowell J. Reed, Ph.D., who for the past three years has served as Vice-President of the University, in charge of medical affairs, has been named to become the administrative head to fill the newly created post of Vice-President of the Johns Hopkins University and Hospital. Dr. Reed currently is President of the American Public Health Association.

Among the common problems between the several institutions are a need for long-range financing, long-range planning of plant and facilities, joint research programs where there are common interests and common requirements of costly instruments and apparatus, and the medical care program which has been undertaken by the hospital.

Some Problems in the Recruitment and Training of Public Health Personnel*

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FEW, if any, will dispute the statement that the recruitment and training of personnel are probably the most urgent problems facing public health today. An adequate number of qualified personnel is required before we can improve and enlarge existing programs, develop new programs, and take full advantage of present public interest and support.

In a study made by the U. S. Public Health Service it was disclosed that a total of 2,587 positions remained unfilled in state health departments during the first six months of the fiscal year 1947–1948. A listing by professional classification of the unfilled positions is given in Table 1.

TABLE 1

Professional Classification	*Planned for 1947 Fiscal Year*	*Employed January 1, 1947*	*Positions Unfilled*
Total	*19,684*	*17,097*	*2,587*
Physicians	1,216	769	447
Nurses	2,138	1,747	391
Dentists	155	87	68
Sanitation personnel—	769	621	148
Engineers	1,451	1,247	204
Others	1,644	1,494	150
Laboratory Personnel	214	169	45
Health Educators	135	101	34
Nutritionists	167	132	35
Medical Social Workers	7,711	7,000	711
Clerical, administrative, and fiscal personnel	4,084	3,730	354
Others			

The shortage of medical and allied professional and technical personnel is not confined to the field of public health. Physicians, dentists, nurses, laboratory technicians, veterinarians, and other similar professional groups are greatly in demand for private practice, industry, federal and state governments, and hospitals. In securing information relative to our hospital licensing program we learned that, on the average, in hospitals under 100 beds, slightly over 50 per cent of the nursing care was provided by nonprofessional nurses. In hospitals over 100 beds, approximately one-third of the nursing care was given by nonprofessional nurses.

A major reason for the need for more public health personnel is the demand by the public for more public health services. As a result of the many technological advances of the last few years, the public has more time to interest itself in and make a study of such problems; and, in addition, has had more money to expend for such services. The accelerated interest of the last few Congresses bears this out, since the members of Congress reflect the attitude of their constituents back home.

* Presented at the 45th Annual Conference of Health Officers and Public Health Nurses, Lake Placid, N. Y., June 21, 1940.

This awakened awareness upon the part of the public of a need for better public health services and the demands upon us, both in old and new programs, make it essential—if we are to discharge our responsibilities effectively — to secure good personnel and train them for their particular positions.

RECRUITMENT

There is no panacea for the relief of the recruitment problem. A suggestion I have to make is that we recognize our competitors for professional personnel and do everything we can to match their offers. Highly remunerative private practice, demands by industry, the expanded medical and allied professional programs within the federal government, and the expansion of our own state and local public health programs keep the well dry. Every effort should be made to meet the compensation schedules of private practice, industry, and the federal government. The fine example established by New York, California, and one or two other states in securing salary levels commensurate with the training and experience involved—even though they still are inadequate—has been of tremendous help to those of us in other states. I seriously question whether we can ever compete with private practice and industry in the matter of compensation; therefore, we must play up to the fullest extent the other advantages of public health, which to me and to you must be more attractive than salary or we would not be here today. I refer to such factors as a retirement plan, vacation with pay, sick leave, slightly more regular hours, opportunities for graduate training, a little more freedom in determining the special field in which the individuals may be interested, opportunities for research within these fields, and the satisfaction of knowing that they have done their part in making the community a better place in which to live. However important salary may be to you as an individual, it is obvious that the best measure of your success is not to be found in your bank balance, but is best shown by your personal development and the good you do your fellow men. This is not a philosophical treatise, but your very presence here today indicates that there are compensations other than salary which attract people to the field of public health. It would seem to be advantageous to place more emphasis in recruitment on factors such as service and security.

Continued progress is dependent upon the understanding and support of the public. This support stems from confidence in our administration. Confidence is earned by the efficient service we give. Our usefulness in the future, therefore, is in direct proportion to the service provided every day in every year by everyone. This means good personnel.

Our success in meeting new programs effectively will be in direct proportion to our ability to discharge present responsibilities more thoroughly and satisfactorily. We are spread too thin now. There are inherent dangers to our future unless we make heroic efforts to consolidate and perfect as we expand. The farmer who buys too much land and the builder who constructs too many houses without sufficient equity soon have their mortgages called and bankruptcy follows. Neither we nor the public can afford such bankruptcy in health. Only by giving careful thought and planning to improve the present, can we build safely and well for the future.

Each year we accept new responsibilities without giving sufficient consideration to the ultimate effect on the total program. In the last few years special programs and categorical grants in cancer, mental health, dental health, industrial hygiene, and now looming on the horizon heart disease, diabetes, and rheumatic fever have deluged us before our basic foundation is adequately and

firmly established. Public health people can appreciate how enormous the task of holding back the sea must have appeared to the little Dutch boy who placed his finger in the hole in the dike. It is appreciated that we cannot and should not divert the interest of the public and our legislative bodies from some of the health problems that are becoming increasingly important. It is recognized that these so-called "new activities" will, and, by their nature should, become integral parts of a well organized and effectively administered health department. However, the question with which we are confronted is: Can the machinery, which admittedly is not adequate for a lesser job, stand the strain of additional activity?

Before the age of high speed rail travel came into its own, it was necessary for the railroad companies to survey their road beds and rolling stock in order to determine whether they could safely engage in such an endeavor. Old style engines were replaced, road beds were leveled, and rails were placed in line. Perhaps the job facing public health in the future is one of securing better engines, leveling the road beds, and lining up the rails.

Admitting that the present shortage of physicians and nurses presents an added handicap in the recruitment of these two classes of personnel, we may as well be realistic and acknowledge that the increased enrollment in our medical and nursing schools of itself will not aid us materially. There are certain qualifications that serve as keys to unlock the doors for more public health physicians and nurses.

I shall refer to physicians in my remarks, but the same factors apply to nurses. The first key is the understanding and respect of public health by the medical profession. Public health is still the red haired stepchild of medicine —not as much as five years ago, but still a stepchild. Public health is referred to as a specialty of medicine, but saying this and seeing it in print does not make it so in the minds of the vast majority of physicians, the teachers in our medical schools, and the medical students. The latter, of course, reflect the active or passive opinions of the two former groups. The recent development of the American Board of Preventive Medicine and Public Health is a well merited recognition of the importance of public health in the field of medicine.

The respect and aggressive support of the medical profession itself must be secured. Editorials and passive acceptance by the leaders are not sufficient. The medical profession should have the same high esteem for public health as it has for obstetrics, surgery, ear-nose-and-throat, and the other specialties. Ours is a more difficult product to sell. There is not the operating room glamour that is attached to surgery or the immediate, tangible, and satisfying results of obstetrics. Neither is there the financial compensation these other specialties may have to offer.

It is essential that these obstacles be recognized and understood if the effort to resolve them is to be successful. The medical student, quite naturally, is more interested in clinical medicine than public health. The clinicians are the glamour professors. They are big names in the state; their reputations are well known; and they have the surgical room or the delivery table to reinforce their didactic lectures with direct, tangible evidence of the contributions of their specialty to saving lives.

Did you ever hear of a professor of medicine discussing heart disease from the preventive as well as the curative viewpoint? Does the average surgeon present the public health aspects of cancer in his lectures or, if he has heard of cancer control, does he believe it has a real relation to the diagnosis and surgical treatment of cancer? How many obstetricians are concerned with pre-

mature care, the high rate caesarean sections in some hospitals, and services available to the expectant mother from various community agencies?

I do not blame the clinical professors. It is not their fault. They received no understanding of public health during their undergraduate days and they have been too busy keeping pace with modern medicine to learn what this young upstart, public health, is and how it concerns them as physicians and teachers. I believe most strongly, however, that until these clinicians do gain an understanding of public health—how it may supplement or complement their services, and why the diagnosis and treatment of a condition may be only one phase of a problem, why the teaching of preventive medicine is a vital part of any course to medical students—then, and only then, will medical students begin to think seriously of public health.

There should be closer integration among the various clinical teachers in planning their courses in order that the students may learn the problem of a disease as it affects the whole organism. Too often the diagnosis, treatment, prevention, and socio-economic factors are presented in a totally unrelated manner and at widely dispersed intervals. Cancer is discussed by the internist; then the radiologist has something to add, possibly six months later; then the pathologist; and, finally, the surgeon. The patient is presented in separate slices, as a loaf of bread. It is difficult for the students to see and understand the whole, as well as the separate parts.

Medical students will not be much concerned with public health until the clinicians, whom they revere, teach public health and preventive medicine as an important phase of their specialty. These clinicians will not teach it until they become interested and understand public health. Such interest and understanding will follow respect for the subject and the members of this specialty. Respect will follow if we do our work so well that the public and the profession cannot fail to take cognizance of the contributions that public health and preventive medicine have made and can offer in the future.

I have taken an undue amount of time to discuss this factor of respect but believe it is one of the most essential objectives toward which we must strive. We say we must have the best of physicians for health officers. I believe this. The work merits only the best. But we will have to admit that some of our health officers on all levels are not what we would like to have. Some are there because they are too old for private practice, others because they have some physical disability and they have heard that health officers lead an inactive life, and still others are available because they have not had the knowledge or perseverance to meet the stiff competition of private practice. This may be putting it too bluntly and may even be exaggerating the conditions a little to stress the point. I do not mean to say that an individual should be discounted in the field of public health because he is old, has some physical handicap, or dislikes private practice. But if these are the only reasons he has for coming into the field, public health will suffer. As hard up as Indiana is for health officers, I have turned down several physicians for a given position because they fell in one of the three categories previously mentioned. The job is too important to be done in a haphazard manner. If the respect of the public and the profession is to be attained, the surest way of success is to have only the best of personnel; the surest way to fail is to accept whatever personnel is available.

Another way of securing more physicians for public health is improved teaching in the departments of public health and preventive medicine of our medical schools. Some of these teachers

have little or no interest in public health; they do not have the proper background of training and experience; and, even more important, they do not have the fire and zeal to sell their product to a group of uninterested medics. Teachers "with a foolish glimmer in their eyes" who can take these skeptics "up on the mountain and show them the promised land" are needed.

There are some examples of teachers in public health who prove this contention. Many of you recall Dr. Waller S. Leathers,* a man with considerable experience in public health, and, in later years, Dean of the Medical School at Vanderbilt University. The State Health Officer of Tennessee states that while Dr. Leathers was dean, ten per cent of the graduates of every senior class went into public health work in Tennessee.

Contrast this with the number who go into public health from most of our medical schools today or with the recent experience of the U. S. Public Health Service in which only two of a class of young commissioned medical officers indicated any desire to perform public health duties.

The Indiana State Board of Health, fortunately, is located on the medical center campus of Indiana University. Many of the staff have teaching assignments with medical, nursing, and dental students. In addition, clinics with the senior class were established approximately three years ago in which small groups of seniors meet with most of our divisional chiefs, both for informal talks and field trips. This enables the students to become familiar with the staff of the State Board of Health; to learn what our ideas and objectives are; what services are available to them; and, in addition, it gives us an opportunity to mention their responsibilities and obligations to the community as well as to the individual patient.

This procedure has aided in a limited degree in securing better rapport with the undergraduates, but it is too late and too little. The students are too well indoctrinated with clinical medicine by that time to have much interest in public health. The teaching of public health should begin early in the medical curriculum. There should be opportunities for these undergraduates to work in local public health departments. Such "on the job" experience will enable them to secure a clearer picture of public health activities and to become aware that there are many resources available to the patient and the physician.

It has been noted, too, that in many instances, when senior students indicated an interest in public health, such interest was lost by the time they finished their clinical internship. This was due to lack of contact with public health during their intern year. The dean of our medical school has suggested the possibility of public health experience as a part of a rotating internship. This would be on a voluntary basis and might serve to crystallize the interest of a few physicians in public health. Provision has been made to provide the Indiana University Nursing School with a public health nurse to serve as a part of its teaching staff with the hope that this nurse will be able to inculcate an understanding of, and an interest in, a public health program for these undergraduate nurses.

Efforts may have to be directed beyond the professional schools in order to secure individuals who will desire to enter public health. Vocational guidance, especially in the small schools, should prove useful in our recruitment program. I mention small schools particularly since the youngsters in such schools do not have as much opportunity for contact with professional groups and with industrial organizations as their urban cousins. For example,

* Deceased 1946

rural Indiana provides most of the teachers for our state. An interest in health as a career can be stimulated through the use of films and literature and followed up with personal contacts where necessary. This early indoctrination of high school students, together with proper rapport with youth councilors, may encourage many high school youngsters upon entering college to choose nursing, medicine, or one of the other professional fields with the ultimate objective of doing public health work.

The idea of going to university underclassmen for recruitment is proving effective in our sanitarian classification. A course leading to the degree of Bachelor of Science in Public Health has been established at Indiana University. The first three years of the course are given on the university campus and the last year at the medical center. The class is necessarily small and is recruited from a large number of interested underclassmen so that considerable selection is possible. The first such class of five men has just been graduated. They are especially fine men and were able to secure good positions at once in local and state health programs.

INTERESTING PEOPLE IN A CAREER IN PUBLIC HEALTH

What kind of people do we want in public health? It is essential to have not just physicians, engineers, and nurses, but "doers," teachers, aggressive and dynamic leaders with plenty of zest and enthusiasm. They must like people, enjoy working with people, and have an unusual amount of patience, tolerance, and perseverance. A desire for wealth automatically eliminates a career in public health—one just does not acquire that kind of money in public health.

Character and integrity are two essential traits for which no amount of training and experience can substitute. Loyalty, dependability, reasonableness, and plain common sense are additional assets to look for in our personnel. Absence of any or most of these characteristics is, in my opinion, sufficient grounds for refusing employment. Individuals without these cardinal traits will do more harm to public health than having the positions remain vacant.

The confidence and support of the public are founded upon their contacts with the individual worker in his or her daily routine. That is why extreme care must be exercised in the selection of these individuals. Everyone in public health needs to be a little bit of a missionary, a teacher, a salesman, and must have the patience of Job and the tolerance of Socrates.

TRAINING

All of us are guild conscious. This reflects itself in several ways. One example is the difficulty in securing an interest by the various professional groups in each other's programs. The engineer sees environmental sanitation but not chronic disease or bedside nursing. The physician does not see that he has a part in stream pollution or dairy programs. And so on through the other professional groups. One of my greatest concerns as an administrator is this lack of interest in and an understanding of three points by the personnel:

1. The overall objectives of the state or local program
2. The responsibility of each specialty to the whole program
3. The problems of public health outside the individual's own specialty

These are not easy objectives to achieve. The medical administrator has been largely to blame for lack of cohesion, and upon him lies the greatest responsibility for eliminating this stumbling block.

I believe strongly in staff meetings of all personnel—professional, technical, and clerical. Our program directors meet every two weeks. Points of general interest and concern are presented, and each

division chief has an opportunity to note problems that occurred in his program. Once a month, meetings are held for the entire staff.

Several months ago, one of our restaurant sanitarians was discussing a proposed ordinance before a city council. This led into a discussion of full-time health departments, but our sanitarian could not give detailed information on permissive legislation for the establishment of such departments. I firmly believe that the members of each professional group must have a working knowledge of the objectives and fundamentals of every other group. We cannot remain autonomous units under one administrative head if we are to succeed in improving public health in general.

Through the assistance of Indiana University, ten-hour courses in leadership and supervision are given at intervals to both professional and clerical employees. Inservice training, in my opinion, is more vital than preservice training. Individuals are more receptive and the discussions are more objective. Some of the objectives kept in mind in such inservice training programs are the following:

1. Review of facts already known for the benefit of everyone—providing a broader base for each individual.
2. Provide information to enable all to keep on top or ahead of new programs.
3. Instill an interest in fields other than own specialty.
4. Provide basic facts for securing an interest in other social problems of a community, such as education, welfare, recreation. (This is included with the thought that if we expect individuals in fields other than health to have an interest in our program, we, in turn, must demonstrate an interest in and an understanding of their problems.)
5. Evaluate objectives from time to time, together with the methods and techniques for attaining these objectives. The criteria of evaluation should be not that of numbers alone but of actual accomplishment.

USE OF AUXILIARY PERSONNEL

"Necessity is the mother of invention." Perhaps our inability to secure certain types of personnel, especially physicians and nurses, will lead us to make wider and more effective use of auxiliary groups. I believe there is a place for lay administrators in public health. They would serve as business managers or executive assistants. Their use in state health departments has increased in the last few years. Justification exists for their utilization in large local health departments to relieve the health officer of certain administrative details and allow him and his medical staff to use their training and skills where they will be most effective.

Practical nurses and nursing aids—or whatever name is finally given to nonprofessional nursing assistants—have been utilized effectively in hospital programs. There should be a place in public health for such individuals, especially where a bedside nursing service is a part of public health nursing. Sanitarians in environmental sanitation, dairy, and food programs have definitely found their niche in public health and are doing effectively what, in some instances, was being performed only by engineers a few years ago. If we do believe that such auxiliary personnel have a place in public health, we will have to provide training for them in order that their greatest usefulness can be realized.

CONCLUSION

If there is one answer to the recruitment of personnel for public health programs, it is to do better in our present everyday tasks. Nothing succeeds so well as success. Using our present knowledge and skills to their greatest efficiency will bring success. This, in turn, will bring with it respect and good personnel.

Progress is not accomplished overnight. There will be no clamoring at our doors tomorrow or the next day by worthy applicants. Aggressive leadership, sound planning, and hard work by

everyone are the answers. Remember Pasteur's statement, "They will tell you to try to prove that you are right; I tell you to try to prove that you are wrong." Let us beware of complacency. Let us see the wisdom of continual evaluation of our objectives, our methods, and our techniques. Let us work together, each with his special skills and experiences pooled for the common objective of improving the health of all the people.

Increased compensation, better personnel practices, sound teaching methods in the undergraduate and graduate professional schools, and training centers in good local health departments are adjuncts in our programs of recruitment and training to the main problem of doing today's job a little better. I am not concerned about the future if the present is successfully managed.

In the words of Carlyle, "Our main business is not to see what lies dimly at a distance but to do what lies clearly at hand."

Committee on the Hygiene of Housing

At a meeting of the Committee on the Hygiene of Housing, held in New York on October 29 and 30, it was reported that the third and final volume of manuals for the Appraisal of the Quality of Housing (dealing with the environment of the home) is in page proof and will shortly be available.[1] The entire appraisal procedure has now been endorsed by the U. S. Public Health Service which is sponsoring the use of the method and is prepared to train local health department personnel in its use (at Atlanta or in areas where special demand exists).

A final draft of Volume II of the Committee's Standards for Healthful Housing, dealing with Planning the Home for Occupancy, was approved for publication and should be available by the first of the year.[2] In this report, minimum space standards essential for healthful living are for the first time developed on the basis of the functional needs of the household; and the results, according to the Chairman, offer a direct challenge to the inadequate housing facilities now often provided under the guise of a false and delusive "economy." Volume III of this series, on the Construction and Equipment of the Home, should be completed during the first half of 1950. In the same period a draft of a standard code of housing regulations, which is being prepared under the leadership of Dr. Edward R. Krumbiegel of Milwaukee, should be ready for publication.

The committee also outlined a program for a series of special research projects, to be undertaken if additional funds can be secured. These projects include: a systematic check and evaluation of the appraisal procedure, to identify its most significant items, with regard to possible simplification; a study of the hygienic and social results of the re-housing of slum populations; and the preparation of a monograph on Housing for the Aged and the Infirm, a subject of major importance, and one which has so far been neglected in this country.

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The Inadequacy of Routine Reporting of Fetal Deaths*

As Evidenced by a Comparison of Such Reporting with Maternity Cases Paid for under the Emergency Maternity and Infant Care (EMIC) Program

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PUBLIC health workers for many years have been greatly concerned with the reduction of infant mortality. Important as such reductions are, it is becoming increasingly clear that the saving of lives lost *after* birth is only part of the problem of preventing loss of life in this period. Thousands of prospective lives are lost each year through deaths of viable infants born at or near termination of pregnancy, representing a tremendous wastage of pregnancy. For example, in 1947 the number of infant deaths (i.e., deaths within the first year of life) reported in New York City was 4,517, while the number of fetal deaths reported was 14,077. Bringing a larger number of these fetuses to a later stage of pregnancy enhances the chances for a live birth. More and more, then, it becomes important to focus on the problem of fetal deaths.

Before attacking the problem, one has to know the extent of it. Many attempts have been made in different countries and within the United States to obtain registration of fetal deaths. There is a lack of uniformity of the definition of the term "fetal death" in the literature, with variations in length of gestation, signs of life, and period allowed for registration of the fetal death. The indiscriminate use of the terms "stillbirth," "abortion," "miscarriage," and "fetal death" has added to the already existing confusion. For example, the minimum period of gestation after which a stillbirth must be reported is 28 weeks in England and Wales, 24 weeks in Belgium and Switzerland, 26 weeks in Czechoslovakia, 32 weeks in Norway, 29 weeks in Denmark, 16 weeks in Japan, and is not specified in France, Italy, and Belgium.[1] In the United States, there is similar variation from state to state. There is likewise no agreement regarding evidence of life. The following terms are loosely used—"any sign of life," "signs of life," "sign of breathing," "breathed or any sign of life," "action of heart, breathing or movement of voluntary muscle."

Several countries consider a "stillbirth" a child born alive but dying within the period of registration, meaning the lapse of time between birth of a living child and registration with the health authorities as a stillbirth if the child dies; this period may vary from

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This is one of a series of papers originating from special studies of the EMIC Program and vital records in the Department of Health of the City of New York.

one to six days after birth. It is thus apparent that the comparison of fetal death statistics from country to country and within the United States is of little significance at the present time.

If one attempts to study the problem in one community, he is immediately faced, as well, with the problem of knowing how completely stillbirths or fetal deaths, no matter what definition is used, are reported to registrars of vital statistics by the physicians and hospitals in the community.

In an attempt to estimate total pregnancy wastage, the Board of Health of New York City on January 1, 1939, amended the Sanitary Code[2] and required the reporting of all fetal deaths regardless of length of gestation. A fetal death was defined in the 1939 amendment as a "stillbirth or a fetus delivered at an abortion (spontaneous, therapeutic or induced), that is, a fetus born dead, including a fetus recovered at operation in a case of ectopic gestation, by caesarean section, and a hydatid or hydatiform mole delivered spontaneously or by operation." Table 1 shows the marked increase in reporting of fetal deaths after this amendment of the Sanitary Code was enacted.

TABLE 1

Reporting of Fetal Deaths in New York City

Year	*Number of Fetal Deaths*	*Ratio to 1,000 Live Births*
1898	5,638	47.4
1908	7,191	49.3
1918	6,793	49.2
1928	6,121	48.5
1938	4,995	48.9
1939	6,831	66.8
1940	7,986	74.4
1941	8,974	78.5
1942	10,013	75.9
1943	9,508	70.7
1944	9,987	81.4
1945	10,367	80.5
1946	12,980	85.0
1947	14,077	82.2

With this increase, the reporting of fetal deaths in New York City was recognized as being much more complete than in most areas. No simple way of testing the completeness of this report ing, however, was found until the EMIC program* made one available.

Under the regulations of that program, a physician or hospital or both were required to file a brief summary of the medical course of the patient prior to payment by EMIC. When these EMIC summaries were tabulated, it was found that there were 2,045 pregnancies in 1943, 1944 and 1945 which terminated in a fetal death. A search was then made to see if a fetal death certificate was filed with the New York City Department of Health for each of the 2,045 fetal deaths. It was found that a certificate was filed for 1,147 or 56 per cent; no certificate was filed for 898 or 44 per cent. It was thus evident that the reporting of fetal deaths in New York City did not give a complete picture of total pregnancy wastage, since approximately 50 per cent were unreported.

Since additional data were available on the unreported fetal deaths, they were analyzed to determine the role played by various factors which might influence reporting—the place of occurrence of the fetal death, the type of physician attending the patient, and the length of gestation.

PLACE OF OCCURRENCE OF EMIC FETAL DEATHS

Section 32 of the *Sanitary Code* of New York City requires that a physician, hospital superintendent, midwife, funeral director, or parent report the fetal death; reporting by a parent is required only if the fetal death occurred unattended. It is obvious that when the fetal death occurs in a hospital, the responsibility for reporting is shared by the hospital superintendent and the physician. The chances of reporting should, therefore, be better than in an attended fetal death occurring at home

* A federally supported program through which maternity care was provided free of cost to the wives of men in the four lowest pay grades in the armed forces. Women reported early in their pregnancies in many instances.

TABLE 2

Place of Occurrence of EMIC Fetal Deaths in New York City

Place of Occurrence	Total	Number of EMIC Fetal Deaths		Per cent Not Reported
		Reported	Unreported	
1. Hospital (Total)	1,942	1,135	807	42
a. Voluntary	1,046	595	451	43
b. Municipal	515	253	262	51
c. Proprietary	358	281	77	22
d. Other *	23	6	17	74
2. Home	103	12	91	88
Totals	2,045	1,147	898	44

* Includes fetal deaths occurring in federal hospital, or patients transferred from one hospital to another.

where reporting rests with the physician alone.

Table 2 shows that when fetal deaths occur at home, they are usually unreported; when they occur in hospitals, about 42 per cent are unreported. The relatively better reporting of fetal deaths by proprietary hospitals should be interpreted in the light of a procedure whereby the Department of Hospitals, which licenses only these hospitals, requires that they furnish certain medical data, including the number of fetal deaths occurring each year, before a license is renewed. These records are then checked to determine whether the deaths have been reported to the Department of Health.

TYPE OF ATTENDING PHYSICIAN

Both the obstetric specialist and the general practitioner failed to report many fetal deaths, even though their cases were better reported than those of other specialists and ward cases. The chief point is that physicians of all kinds should report fetal deaths more carefully and completely. The incidence of such deaths should be reduced as the quality of antepartum and intrapartum care is improved. But the facts cannot be known unless figures on all terminated pregnancies are available.

LENGTH OF GESTATION

The third possible factor in completeness of reporting—and which one supposes would be of great influence—is the time of gestation at which the fetal death occurred. Did physicians and hospitals really understand the term "fetal death" to mean a fetus dying at any time during pregnancy?

Table 3 shows that reporting increases with the length of gestation. Evidently the term "fetal death" was usually interpreted by physicians in terms of the word "stillbirth," with which they were familiar and which usually means a death occurring in late pregnancy.

TABLE 3

Trimester of Pregnancy in Which the EMIC Fetal Deaths Occurred

Trimester of Pregnancy	Total	Number of Fetal Deaths		Per cent Not Reported
		Reported	Unreported	
1st Trimester	858	287	571	67
2nd Trimester	386	253	133	34
Reported as "early"	68	68	0	0
3rd Trimester	559	480	79	14
Reported as "late"	2	2	0	0
Unknown	172	57	115	67
Totals	2,045	1,147	898	44

DISCUSSION

It has been demonstrated that the reporting of fetal mortality is quite incomplete, roughly 50 per cent as judged by this study. Thus, the 14,000 reported fetal deaths in New York City in 1947 may represent at least an estimated total of 28,000 fetal deaths during this period. In order to secure an adequate picture of the volume of pregnancy wastage, physicians and hospital administrators have to be made aware of the need for reporting all fetal deaths to the vital statisticians in their communities.

It is interesting that the reported fetal death ratio of 82.8 per 1,000 live births in 1947 is as high as the infant mortality rate was in 1920. Since then the infant mortality rate has dropped to a low of 26.4 for the years 1947 and 1948. It is recognized that the decrease in infant mortality was due to many factors—improvement in community water supplies, pasteurization of milk, better medical and nursing care during pregnancy, delivery, and infancy, etc. With the decrease in certain causes of infant mortality, a shift in the cause of death has also occurred, and today other causes which are natal in origin—such as premature birth, birth injury, and congenital malformations—now play a major role, indicating the increasing importance of antepartum and intrapartum care. One would hope that reductions in fetal mortality might be achieved by directing attention to factors such as the quality of antepartum and intrapartum care, nutrition of the expectant mother, socio-economic status, education of the public as to the importance of early and adequate antepartum care; certainly guided family planning cannot be ignored. It must also be pointed out, however, that some of the fetal deaths are not preventable and that their occurrence is actually biologically desirable. Thus, by early termination of certain pregnancies, the species rids itself of genetically unsound combinations, the so-called lethal or semi-lethal combinations. Our knowledge of human reproduction is still extremely limited and further studies, including large-scale longitudinal studies of "pregnancy wastage," are badly needed.

CONCLUSIONS

1. Forty-four per cent of fetal deaths resulting from pregnancies in which medical care was paid for by the EMIC Program in 1943, 1944, and 1945 were not reported as fetal deaths to the registrar of vital records in the Department of Health in New York City, where the reporting of all fetal deaths (i.e., any products of conception) has been rigorously promoted for the past decade.

2. In this EMIC fetal death series, reporting was more complete when the death occurred in the latter months of pregnancy and when the birth occurred in proprietary hospitals which are under closer governmental supervision than other hospitals.

3. There is need for further studies in the field and for greater interest of the medical profession in securing more complete reporting.

4. Uniformity in definition of terms, "stillbirth," "fetal death," "abortion," and "miscarriage," and more complete reporting of such deaths are essential before an adequate picture of the problem of pregnancy wastage is available.

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Use of Antibiotics in the Presumptive Medium for Water Analysis

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THE shortcomings of lactose broth as a presumptive medium in water analysis are well known. Its inadequacies fall into two general categories (1) the false positive, and (2) the false negative.

False positive results are obtained when non-coliform organisms produce acid and gas in lactose broth in 48 hours. *Clostridium welchii, Bacillus macerans,* and *Bacillus polymyxa* are often associated with false positive presumptive tests by virtue of their ability to produce acid and gas from lactose; when synergistic gas production occurs the fecal streptococci are usually found as one member of the pair.

False negative results in lactose broth occur when non-coliform organisms overgrow the coliforms and prevent gas production or prevent coliform isolation in the confirmatory medium, once gas has been produced by coliforms. It might be mentioned that the false negative result has often been overlooked in water analysis. Yet, in the false negative the error is on the dangerous side, because coliforms, although present in the original water sample, are not detected.

In an attempt to eliminate false positive and false negative presumptive tests, bacteriologists have developed a great number of presumptive media containing substances which inhibit undesired organisms. Despite increased selectivity for coliform organisms, none of the selective media have proved to be satisfactory substitutes for lactose broth, and only one, lauryl broth, has been approved by the Committee on Standard Methods as an alternate presumptive medium.

The use of antibiotic substances suggests a new approach in the search for a more desirable presumptive medium. It is well known that substances, such as penicillin and tyrothricin are inhibitory to Gram-positive organisms and that Gram-negative organisms are relatively resistant.[1] The problem presents itself as to whether an antibiotic substance could be added to lactose broth in such concentration as to prevent the growth of the Gram-positive organisms while at the same time allowing full development of coliform bacteria. Both penicillin and tyrothricin have already proved valuable as inhibitory agents in selective media.[2-6]

In the present work, penicillin, tyrothricin, and streptomycin were considered as substances which might possibly be of value in the elimination of false positive and false negative reactions when incorporated into the lactose broth presumptive medium. The sensitivity of coliforms, *C. welchii,* the aerobacilli (*B. polymyxa* and *B. macerans*), and the enterococci to each of the antibiotics was determined; media containing these antibiotics were then prepared and tested in actual water analysis.

EXPERIMENTAL

Determination of antibiotic sensitivity of significant organisms—Representative

* With the technical assistance of Martin E. Ward.

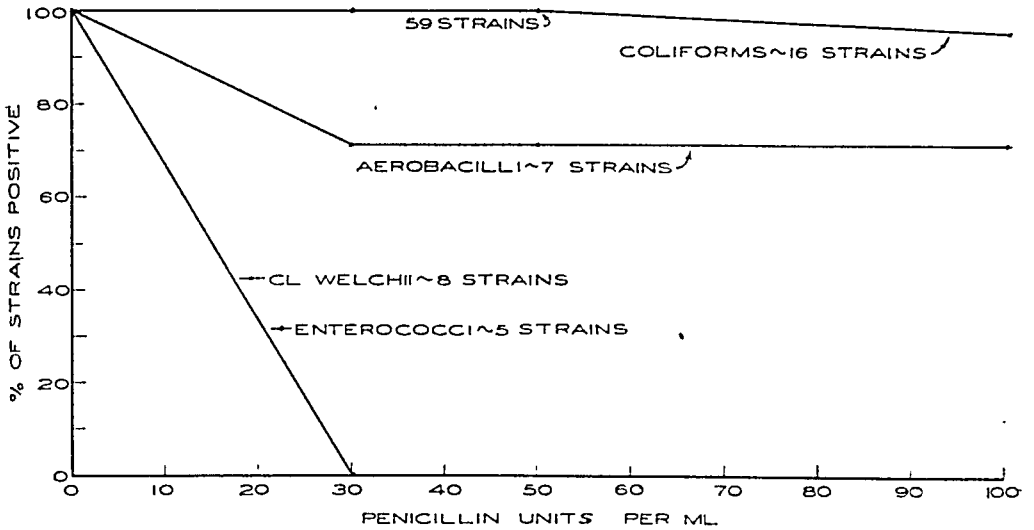


FIGURE 1. Per cent of strains of coliforms, aerobacilli, enterococci and *C. welchii* giving positive tests in lactose broth containing various quantities of penicillin.

strains of coliforms, enterococci, aerobacilli, and *C. welchii*, isolated from natural sources and also obtained from stock culture collections of laboratories throughout the country, were used for antibiotic titrations.

Lactose broth was prepared according to directions in *Standard Methods for Examination of Water and Sewage*[7] and dispensed in test tubes in 2.5 ml. amounts. After sterilization, and just before inoculation, the antibiotics were added in sufficient amount to give the desired concentration. Regardless of the concentration, tyrothricin was added in 0.05 ml. of 95 per cent ethyl alcohol, penicillin in 0.5 ml. distilled water, and streptomycin in 0.05 ml. distilled water. In each titration, lactose broth and lactose broth plus solvent were inoculated as controls. To prepare the inoculum, each organism to be tested was transferred every 24 hours on three successive days. Each tube received an inoculum of 0.05 ml. of the 3rd 24 hour lactose broth culture. All tubes were incubated at 37° C. for 48 hours, and readings were made at 24 and 48 hours. The presence of acid or acid and gas was recorded. A positive result was defined as the production of gas in any quantity at the end of 48 hours; but in the case of the enterococci, acid alone was termed a positive result. *C. welchii* cultures were incubated in an anaerobic jar, using Rosenthal's[8] chromium-sulfuric acid method.

Titration results for penicillin and tyrothricin are found in Figures 1 and 2. Since the coliform and non-coliform organisms had about the same sensitivity ranges to streptomycin, it was concluded that this drug would be of no value in the problem at hand, and therefore streptomycin results are not shown.

One of the 16 strains of coliforms tested was inhibited at 100 units of penicillin per ml.; none of these and none of 43 additional strains tested was inhibited at 50 units. All *C. welchii* and enterococcus strains were inhibited at 30 units of penicillin, but 5 of 7 aerobacillus strains were unaffected by concentrations up to 400 units per ml.

The results with tyrothricin were similar; all 45 coliform strains were positive in 100 μg. per ml.; all *C. welchii* and enterococcus strains were inhibited by 30 μg. or less, while 4 of the aerobacillus strains gave gas in the presence of 50 μg. per ml.

From these data it would appear that

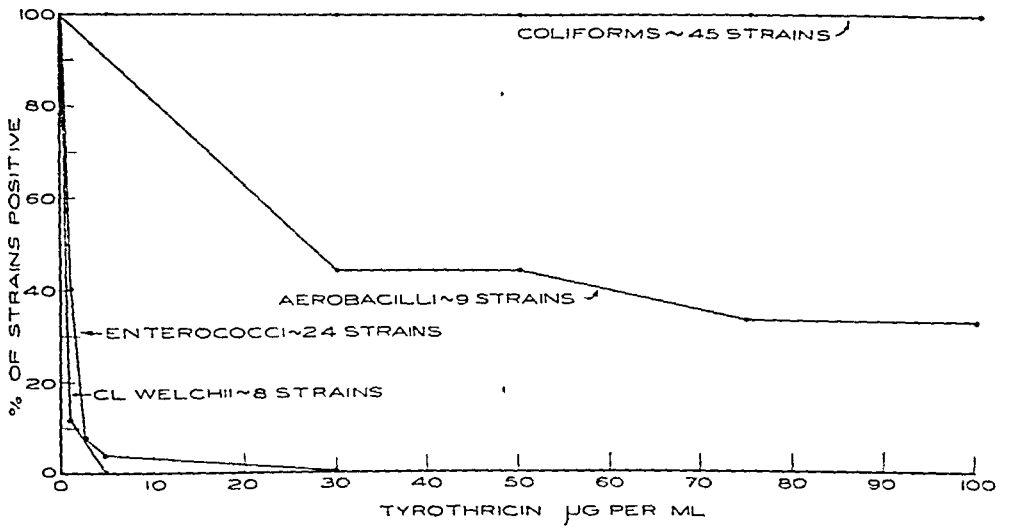


FIGURE 2. Per cent of strains of coliforms, aerobacilli, enterococci and *C. welchii* giving positive tests in lactose broth containing various quantities of tyrothricin.

the addition of between 30 and 50 units of penicillin or 30 to 100 μg. of tyrothricin per ml. of lactose broth would result in a medium that would eliminate false positives due to *C. welchii* and enterococci and part of those due to the aerobacillus group, without inhibiting gas production by coliforms.

The technique employed in the above titrations resulted in an inoculum of approximately 2 x 10^7 cells of the test organisms per tube. In water analysis one deals not with millions or even thousands of organisms in the presumptive tubes but with significantly smaller numbers. Since the effect of many bacteriostatic and bactericidal agents is a function of the number of cells exposed, it was of importance to test the effect of tyrothricin and penicillin when smaller inocula are used.

For testing the effect of antibiotics on smaller inocula the most sensitive and most resistant strains were used. *Escherichia coli* 26 and *E. coli* W (both from the Army Medical School collection) were sensitive to 100 units but not to 50 units of penicillin per ml.; *Aerobacter aerogenes* A.T.C. 8308 and *Bacillus macerans* 888 (obtained from Dr. N. R. Smith) were unaffected by 418 units per ml. *B. polymyxa* 1A and 1B (fresh isolates) were resistant to 100 μg. per ml. of tyrothricin. Cultures of each organism were prepared in the manner previously described. The cultures were then diluted in 99 ml. water blanks to $1:10^{10}$. Plate counts were made from bottles representing $1:10^6$ and $1:10^8$ dilutions of the original cultures. Tubes containing lactose broth, lactose broth plus antibiotic, and lactose broth plus solvent were inoculated with 0.05 ml. from each dilution of the original culture. Cultures were incubated and read as previously described. The size of each inoculum was calculated from the plate counts. Results are presented in Table 1. Because of the technique used there is a hundred-fold difference between positive and negative results, no data being obtained on intermediate points.

It can be seen that, in general, a larger inoculum was required in the presence of either antibiotic than in the control to obtain positive results. In each case, a smaller number of coliform organisms was needed for positive results with tyrothricin present than with either of the penicillin concentrations tested.

TABLE 1

Effect of Bacterial Numbers on Gas Production in Lactose-antibiotic Media

Organism	Penicillin Conc. Units/ml.	Bacteria per Tube: Positive Results *	Bacteria per Tube: Negative Results †	Tyrothricin Conc. μg /ml.	Bacteria per Tube: Positive Results	Bacteria per Tube: Negative Results
A. aerogenes	50	1,700,000	17,000			
ATC 8308	30	10,000	100	100	100	1
	0	1	0.01	0	1	0.01
E. coli	50	500,000	5,000			
26	30	3,000	30	100	50	0.5
	0	50	0.5	0	50	0.5
E. coli	50	6,000	60			
W	30	1,300	13			
	0	60	0 6			
B. maccrans	50	750,000	7,500			
888	30	250,000	2,500			
	0	250,000	2,500			
B. polymyxa				100	65,000,000	650,000
1A				0	650,000	65,000
B polymyxa				100	28,500	285
1B				0	28,500	285

* Size of smallest inoculum tested giving a positive presumptive test.
† Size of largest inoculum tested giving a negative presumptive test

The very large inocula of aerobacilli required to give a positive presumptive in the presence of either antibiotic in the medium suggests that these organisms would give very little difficulty in actual water analysis. On the other hand, since both penicillin and tyrothricin apparently have some inhibitory effect on the coliform strains used, one might expect some false negative results to arise when examining water containing small numbers of coliforms using media containing the antibiotics. In order to get a better measure of the inhibitory effect a more quantitative experiment was done.

E. coli 26 was used. Suitably prepared 24 hour cultures were diluted in sterile distilled water in such a manner that the inoculum finally used approximated a single cell. Five runs were made, each with a different sized inoculum. From each different dilution, a series of lactose broth and tyrothricin lactose broth tubes were inoculated, each tube containing 2.5 ml. of lactose broth and receiving 0.05 ml. of the diluted culture.

The number of cells introduced per tube was determined by making ten replicate plate counts from the culture dilution used. Thus, in one instance there was an average of 6.2 organisms per ml. in the diluted culture, and since 0.05 ml. was used in each tube, the calculated inoculum was 0.31 organisms. It may appear incongruous to speak of an inoculum of less than one organism per tube. This merely indicates, however, that if there were even distribution of the organisms in the dilution blank and if each viable cell were to grow in the new medium, then one hundred tubes tested with this inoculum should produce 31 positive tests.

Table 2 shows that in both media the percentage of positive tests increased with the size of the inoculum. In no case was the percentage of positive tubes as high in the antibiotic medium as in lactose broth, but, even in the control medium, the recovery never reached that which would be predicted from the size of the inoculum as determined by the plate count. At concentrations between 25 and 75 μg. per ml. of tyrothricin the recovery was apparently independent of the antibiotic concentration.

In Figure 3 the percentage of positive tubes has been plotted against the inoculum. Tyrothricin results represent a summation of all concentrations tested in each dilution. Each of the experimental curves has been extended by

TABLE 2

Production of Gas in Tyrothricin Lactose Broth by Small Inocula of E. coli 26

Bacteria per Tube *	Tyrothricin µg./ml.	Number of Tubes	Number Positive	Per cent Positive
0.31	75	50	3	6
	0	50	8	16
0.45	100	10	0	0
	75	10	1	10
	50	10	1	10
	25	10	1	10
	0	10	3	30
0.69	75	25	1	4
	50	25	1	4
	25	25	4	16
	10	25	1	4
	0	50	29	58
1.28	25	25	2	8
	0	25	12	48
1.75	75	50	18	36
	0	50	45	90

* Average of ten replicate plate counts of culture dilution used.

inspection so that it intersects a line parallel to the horizontal axis corresponding to 100 per cent positives. In addition, a theoretical curve has been drawn showing the percentage of positives which would be expected under ideal conditions, i.e., perfect distribution and growth of each cell in the new medium.

With reference to Figure 3, it can be seen that 100 per cent positive tests in lactose broth would be predicted with an inoculum of 1.8 organisms per tube as compared to an inoculum of 2.4 in the antibiotic medium. Failure to attain complete recovery of coliforms in either medium can be traced in part to the distribution error and in part to inherent physiological differences in the individual cells of the culture. Whatever the reason, it is apparent that the antibiotic medium is somewhat more inhibitory to test organism than lactose broth; in actual water analysis such an effect might result in false negative results with waters of low coliform density. Due to the effect of other organisms it is probable that in natural waters a still greater number of coliforms would be required to produce 100 per cent positives in either medium. The question arises as to whether the antibiotic would render the medium sufficiently more selective than lactose broth to compensate for the undesirable effect of coliform inhibition.

Only a single coliform strain was tested in this fashion, but, since the strain used was the most sensitive to tyrothricin in our collection, it was felt that the inhibitory effect was of sufficiently low order to warrant a test of tyrothricin lactose broth in routine water analysis. This portion of the work was exploratory in nature and no attempt was made to treat the data in a rigorous statistical manner. It is suggested that the technique described might prove valuable in testing other proposed pre-

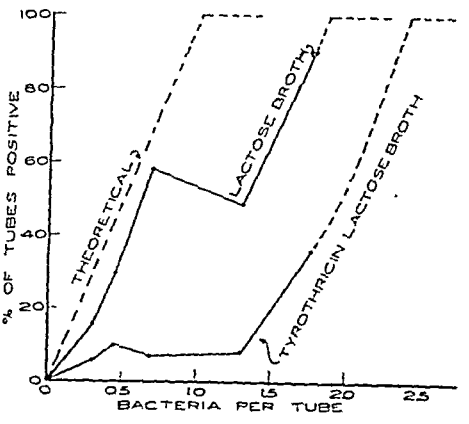


FIGURE 3. Per cent of positive presumptive tests given by very small inocula of *E. coli 26* in standard lactose broth and tyrothricin lactose broth.

TABLE 3

Analysis of 97 Water Samples (48 Raw, 49 Treated) Using Standard Lactose Broth, Penicillin Lactose Broth, Tyrothricin Lactose Broth and 2 Per cent Brilliant Green Bile Broth for the Presumptive Test and E.M.B. Agar as the Confirming Medium

	Raw Water Samples				*Treated Water Samples*				*All Water Samples*			
	*SLB**	*BGB*	*PLB*	*TLB*	*SLB*	*BGB*	*PLB*	*TLB*	*SLB*	*BGB*	*PLB*	*TLB*
Presumptive positive tubes	154	87	107	90	71	36	30	19	225	123	137	109
Presumptive tubes completed	84	66	69	38	16	19	13	3	100	85	82	41
Per cent of positive tubes completed	54.5	75.7	64.3	42.2	22.5	52.8	46.6	15.8	44.4	69.1	60 0	37.6
Positive water samples †	35	25	29	21	10	10	7	3	45	35	36	24
Per cent of total positive water samples ‡	89.7	64.1	74.3	53.8	50.0	50.0	35.0	15.0	76.3	59.3	61.0	40.6

* SLB—standard lactose broth; BGB—2 per cent brilliant green bile; PLB—penicillin lactose broth; TLB—tyrothricin lactose broth.

† Number of water samples that gave at least one positive confirmed or completed test.

‡ Ratio of positive samples detected by a medium to total positives detected by all media (total positive water samples detected; raw 39, treated 20, total 59).

sumptive media, as it gives a ready means of evaluating the maximum efficiency of any such medium.

The use of antibiotic media in routine water analysis—Samples taken from the Los Angeles Water District were tested. On the basis of the work in the preceding sections, lactose broth plus 25 μg. of tyrothricin per ml. and lactose broth plus 30 units of penicillin per ml. were used. In addition, standard lactose broth and 2 per cent brilliant green bile broth were used as controls. For all water samples, five tubes of each of the four media were inoculated; 10 ml. of the water being added to 10 ml. of double strength medium. All tubes were incubated at 37° C. for 48 hours and were examined at frequent intervals for gas production. As soon as gas in any quantity was detected a subculture was made by streaking on an eosin methylene blue agar plate. The plates were examined after 24 hours, and where typical *E. coli* or *A. aerogenes* colonies were found, a positive completed test was assumed. Where only atypical colonies were observed the standard completed test was run. A total of 48 raw water and 49 treated water samples were examined. The data obtained are summarized in Table 3.

The tyrothricin broth is obviously inferior to the other broths as to recovery of, and selectivity for, coliforms. Of the other three media, the standard lactose broth yields the greatest number of positive completed tests but has the lowest per cent of presumptive tests completed. This relationship arises from the greater number of coliform recoveries in lactose broth from raw water samples, since with treated waters brilliant green bile medium gave more positive completions. The results with brilliant green bile broth and penicillin lactose broth were about the same in regard to total positive completions, the former yielding slightly higher numbers from treated waters and the latter showing a few more positives from the raw waters. The brilliant green

bile broth was more selective, giving a higher per cent of presumptive tests completed with both types of water.

A slightly different picture is obtained when the results are considered in terms of positive waters detected. If a "positive water" is defined as one which yields at least one positive completion, regardless of the medium in which it occurred, then standard lactose broth gave 45 positive waters, brilliant green bile 35, penicillin lactose broth 36, and tyrothricin lactose broth 24. Fifty-nine positive water samples were detected from the four sets of media. No one medium found all the positives in either group. Lactose broth gave the highest results (89.7 per cent) followed by penicillin lactose broth (74.3 per cent) for the raw waters; lactose broth and brilliant green bile broth gave the same results for the treated waters (50 per cent).

DISCUSSION

It would seem from the data that the particular antibiotic containing media used offer no advantage over the standard lactose broth as a presumptive medium. Retaining the principle of an antibiotic as a selective agent, the most obvious change that could be made in the formulas of the media is the antibiotic concentration. Surprisingly enough it is hard to predict in what direction the change should be made. Increasing the concentration could result in the inhibition of more sensitive coliform strains with consequent lower recoveries; decreasing the concentration could result in more presumptive positives but might also decrease the total coliform recoveries because of the overgrowth of complicating organisms not inhibited.

From the titration data in the first section of the paper one might have expected a greater selectivity of the media and a higher coliform recovery. The data from actual water analysis emphasizes the fact that the activities of mixed flora cannot be predicted from pure culture studies. Along with the direct effects of the non-coliforms on the coliforms in water, there is the added effect of the microflora on the antibiotics themselves. The existence of organisms in nature that inactivate penicillin is well known, and, although as yet unreported, similar ones destroying tyrothricin are far from unlikely. These factors further complicate the logical selection of proper antibiotic concentrations and make it evident that future studies in this direction would be strictly empirical.

Other changes beside antibiotic concentration might result in a more valuable presumptive medium, such as changes in the sugar or peptone concentration, the use of a more selective nitrogen source than peptone, the incorporation of materials like cacotheline and hydroquinone to inhibit Gram-negative non-coliforms, and the use of a buffer in the formula. It is obvious, of course, that these changes could be studied with equal benefit in relation to any of the numerous media already in use or proposed for the presumptive test.

The data can also be discussed from a broader viewpoint. It has been seen that no one medium detects all the positive water samples whenever a relatively large number of waters are being tested. In fact, the larger the number of media the more positive waters are detected. This, of course, is partly due to the increased amount of water which must of necessity be tested as the number of media are increased, but other factors are also involved. When a single water will give 4 confirmed positives out of 5–10 ml. samples in a single medium and fails to show as many as one in the 15 tubes of the other three media each containing 10 ml. of the same water then random distribution or increased amounts of water tested cannot explain the results. This situation, and others quite similar, were observed in individual waters in the series, and there was at

least one instance in which each of the four media used was significantly superior to the other three.

One might state the obvious truism that no two samples of water are exactly alike. It may be that each water, or closely related type of water, demands a unique medium for perfect analytical results based on the coliform density. Should this hypothesis approach the existing situation, then the search for the "perfect presumptive medium" becomes the search for the philosopher's stone. Might it be suggested that any marked improvement in the methods for the sanitary examination of water demands an entirely new approach?

SUMMARY

The addition of antibiotic substances to lactose broth has been considered as a possible means of increasing the efficacy of the presumptive medium in water analysis. Sensitivity of coliforms, aerobacilli, enterococci, and *C. welchii* to penicillin, tyrothricin, and streptomycin was determined. With pure cultures appropriate concentrations of penicillin or

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used as controls. Penicillin lactose broth was less sensitive (fewer positive completed tests) but more selective (a higher per cent of positive presumptive tests completed) than standard lactose broth. With reference to brilliant green bile broth, the penicillin medium was equally sensitive but less selective. Tyrothricin lactose broth was inferior to the other three media in both respects. No medium detected all the positive water samples.

It is concluded that modifications in the present formulation of the antibiotic media will have to be made if they are to be of practical value in water analysis.

ACKNOWLEDGMENTS—The authors are grateful to Mr. Harry G. Neumann of the Los Angeles Department of Water and Power for providing the water samples. They also wish to express their appreciation to Drs. Max Levine, L. S. McClung, H. Katznelson, N. Kramer, E. S. Wynne, and N. R. Smith who supplied some of the cultures tested.

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Public Relations in Public Health*

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PUBLIC health is big business. Federal, state, and local governments expend through health departments almost 400 million dollars[1] annually for this important commodity. Public health is one of government's most important businesses, in that it not only promotes and maintains within a nation a high standard of living, but assures the nation a people who are vigorous, active, and physically prepared to meet national emergencies. The health enjoyed by our civilian population determines the physical fitness of our military forces. Without good health no nation may expect to survive either in peace or war.

That civilizations have fallen in the past because of poor health has been often and well demonstrated; for example, the devastating effects of malaria upon the golden era of Greece; the pernicious destruction wrought by malaria, typhoid fever, and smallpox which hastened the fall of the Roman Empire; or, finally, the hastened collapse of the Italian and African fronts through the crippling effects of disease in the last World War. That the eradication and suppression of such scourges is not alone the result of public health practice is common knowledge; but it is a fact that, through the application and extension of public health measures, nations have experienced tremendous improvement in the health of their civilian and military populations.

While past experiences have shown that efforts of health departments alone cannot prevent disabilities and illness, it is nevertheless true that adequately staffed health departments, working in coöperation with the medical profession, hospitals, and other community resources, can do much to maintain good health and keep to a minimum unnecessary illness, disability, and deaths.

THE ROLE OF PUBLIC RELATIONS

The attainment of the objectives of any program can be hastened by the employment of a continuing, good public relations program. Certainly, government's investment in the work of a health department deserves a critical analysis of the techniques which that health department employs in enabling people to attain and maintain optimal health through the prevention of unnecessary disability and sickness, the prolongation of life and the development of a sense of physical, mental, and social well-being.

In the attainment of these objectives, public relations can play a most important part, provided it is based on a well organized plan implemented with careful thoughtfulness by the entire staff of the department. In this respect, public relations may be considered as a science through which an organization may discharge its obligations in a manner which secures that public recognition and approval which is necessary to success.

A program of public relations involves many facets. It is more than health

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education. It covers, in fact, all of the relations which the department's staff has with the public from a telephone message or a letter, to the nurse's visit, the sanitary inspection, the investigation of a complaint, the examination of the school child, or the immunization of a baby—all of which are daily opportunities for health workers to win public understanding and support of the department's health program.

Recent years have brought vast changes in the social and economic structure of the nation; progress in medical science has caused attendant changes in health programs. New public health laws have brought new services and responsibilities to state and local health departments.[2] This rapid expansion, however, has not at all times occurred as a part of well considered or carefully integrated community health programs, nor has public understanding in all instances kept pace with this expansion. The health department must accept its portion of the responsibility for this failure. It is not only the health department's function, but a prerequisite to the success of its programs, that it evaluate, assimilate, and guide public opinion. By so doing any program which it initiates will not only reach, but become a part of the community. Each health department employee must realize that good public relations are involved in all aspects of his work.

PUBLIC RELATIONS METHODS

The use of public relations as a descriptive term becomes at times, vague and misleading. Its objectives may be divided into several categories: (1) the internal relations within a department; (2) the dissemination of information or health education; (3) community organization; (4) professional relations; and (5) governmental relations with other agencies of local, state, and federal government.

The tools of the science of public relations are many, and in general the health officer is oftentimes startled by the plethora of media available: radio, newspapers, movie films, lantern slides, television, letters, telephone calls, personal visits, exhibits, talks, personal appearances, and last but certainly not least, pamphlets and annual reports. These and many other tools are available to each of the staff for the formulation of public opinion leading to the creation of a demand for health services. An appreciation of the need for health services on the part of the public must be followed by their continued use of these services. Only in this way can the health department succeed in establishing the utilization of health services and, in the final analysis, receive the necessary support for increased health appropriations and improvement in salaries, equipment, and physical facilities so urgently required by many health departments.

INTERNAL RELATIONS

Public relations, like charity, begin in the home. A health department must, therefore, establish a well formulated internal relations program for the improvement and strengthening of personnel relationships. To maintain the acceptance and understanding of all members of the "inner circle" or departmental staff is a prerequisite to the department's successful liaison with outside groups. Serious consideration must be given to the employee's concept of the fairness, understanding, courtesy and kindness extended to him by the department, as well as to his reaction to the physical plant in which he works. Staff integration is all important. The busy atmosphere attendant upon good staff morale creates within the department an environment into which the outsider may enter with pleasure and confidence.

An awareness on the part of each employee of his department's objectives and services must be developed. While

the health officer is the key in all health department programs, the public relations program is not his field exclusively. The health officer may set the pace and policies and determine the plans for a public relations program, but to make it effective his entire staff from the chairman of the board to the humblest clerk must have a thorough knowledge and appreciation of the work, objectives, plans, policies and hopes of the department.

Since every contact of a health department employee is an opportunity for the development of good community relations, it is urgent that a proper in-service training program be developed for the instruction of personnel. Such a program should include a series of lectures, or talks, or informal seminars given by persons skilled in public relations, health education, and the humanities. A manual of procedures[3] should be developed which should include simple duties such as proper telephone deportment, correspondence standards, the management of visitors, home visits, and other everyday activities of each of the various professional and clerical staff members. The truly great opportunity to improve public relations lies in this effective utilization of the numerous and varied contacts of the staff. This can be far more effective and infinitely less expensive than any large-scale promotional or publicity campaign.

Through regular staff meetings the objectives, plans, policies and procedures of the health department should be carefully analyzed and evaluated. Such conferences offer to staff members an excellent opportunity to become acquainted with the programs and activities of fellow workers and thus bring about a deeper understanding and appreciation of the work carried on in other fields of activity—a reciprocal internal support which is the keystone of not only good public relations but also of a good public health program.

HEALTH INFORMATION

The dissemination of information, through departmental publications, constitutes an important segment of a health department's total public relations program. The use and abuse of a few of these publications may serve to illustrate the methods whereby success or failure may be realized.

All health officers receive the annual reports and pamphlets of other health departments. Few publications, unfortunately, are of interest. As these reports do not appeal to the health officer, it is reasonable to assume that they will not be read by the layman. In the final analysis, the function of an annual report is not to record but to inform. Bulky volumes of statistical analyses, prefaced by long narratives and printed in small type upon a poor grade of paper, quickly find a place in the "circular file." The annual report should be a report to the employer—the public. Printed on good quality paper, in color, well illustrated and in large print, it should present only the highlights, the objectives, and the recommendations for future action.[4] Above all, it should be interesting. It has been said that there are no dull subjects, but only dull writers.

Pamphlets too often are a waste of money and effort. Printed on newsprint, with very small type and without color or illustrations, their very appearance too often discourages the reader from investigating the content. A pamphlet should be short, its message simple, couched in basic English, and presented in a form which will be inviting. This again requires good illustrating, color, large print, brevity, and paper of good quality.

Newspaper releases, an important public relations medium, may be either an excellent method of creating or destroying good public opinion. If poor in character, a news release may receive a bad press, no press at all, or so antago-

nize the press that it creates a poor public opinion of the work and services offered by the health department. Above all, a newspaper release must have news value; it must be truthful and so written that technical language and statistical reports are transformed into a message which skillfully informs and at the same time maintains the interest of the general public. Although newspaper publicity may be considered vital to a health department in order that it keep its purposes and objectives in the public consciousness, its use should not be permitted to dominate the total public relations program. "Emphasis," it is said, "is too frequently placed on the tools of publicity rather than the skill with which they are utilized."

COMMUNITY ORGANIZATION

It is not enough for a department to have vague plans for the improvement of the health of the community; it is not enough, for example, to plan to improve immunization against diphtheria. Plans for new or expanded services must be definitive in time, in place, and in quantity of work to be accomplished; they must be definitive in the quality of services rendered. These objectives can be crystallized only after a careful study of community needs and of the acceptability of programs by the people served; they must be based upon an objective analysis made in coöperation with other voluntary and official agencies.

The public demand and utilization of a health department's services determine the success of health programs. To be efficient, these services must be coördinated with those of other agencies. This means that the community relations program of a health department must reach the public, the healing arts professions, and other official and voluntary health and social agencies. The health officer in working with such groups must clearly define the department's objectives in order to foster the coöperative development of public support. People must not only know what is necessary for the maintenance of their health, but they must also be made aware of the services available to them through the health department and other community health agencies. They must know the what, where, how, and when of obtaining the services, and, finally, must be motivated to demand them.

"Submerged leadership" of the health officer within community organizations, such as health councils or health divisions of councils of social agencies, will successfully coördinate community health programs. That is, he provides the necessary guidance, advice, and support to interested citizens and agency workers in the development of health programs, and he allows the credit for implementing such measures to be enjoyed by them directly. "Credit," it has been said, "is like a bacterial colony, the more you divide it the more there is." After all, the health officer has attained his objective if civic leaders speak of "our" health program. A community health council can be a health department's watch dog. It may be its staunchest friend; and support the health officer's efforts in a way which will never subject the health officer to criticism that he may be seeking either more authority or a better salary.

Important objectives as, for example, increases in departmental budgets or the passage of legislation are far more readily realized when supported by an interested citizenry. However, the mere passage of a public health law does not bring about the success of any program. As Abraham Lincoln pointed out, it is "the acceptance on the part of the people or the public opinion behind a law which makes its enforcement and execution possible or impossible."

PROFESSIONAL RELATIONSHIPS

The practising physician is the most

important dispenser of preventive medical services, and it is urgent that cordial relationships be maintained between the medical profession and the health department.[6] Unfortunately, in some areas this condition does not exist. The health department may be entirely dominated by the medical society or the society may resent the intrusion of public health programs into their spheres of activity. If a health officer desires to have his program understood and endorsed by the professions, he must present it in a forthright manner. However, a cordial liaison with a professional group does not imply that the program need be directed by them but rather that their endorsement, assistance, and support is necessary to success. To improve friendly relations, members of the staff of the health department should be urged to maintain active membership in their professional societies. This includes attendance at professional meetings, participation in their programs and work on the various organizational and scientific committees. The health officer or public health nurse who avoids active membership in his or her professional society is failing in responsibility to the department as well as the profession and does not assist the department in obtaining the necessary support and understanding of its program.

Technical advisory committees should be organized and should meet periodically. Their purpose is to give advice and, conversely, to be informed of the objectives, plans, and policies of the department. The members of these committees through acquaintance and understanding of various health programs may actively support their objectives and interpret the work of the department to their daily contacts.

GOVERNMENTAL RELATIONS

The health department is only one member in the family of local government agencies. In all families antagonism may arise among members, and there are communities in which definite antagonism exists between the school department and health department. Similarly, there are instances in which the public health nurse, the school nurse, and the Visiting Nurse Association nurse do not integrate their activities, as a matter of fact will not pass one another on the same side of the street. These conditions are examples of poor public relations. In each community activity there should be organized regular inter-agency conferences. School health is the joint responsibility of the health and school departments. Public health nursing is the joint responsibility of all agencies employing public health nurses. After all, it is the community health program which is important and not the isolated Visiting Nurse Association, school committee, or health department program. Too often a health worker loses sight of the ultimate objectives because of jurisdictional disputes, and the efforts of all involved are ineffectual. Cordial relations must be maintained not only among the agencies of local government but with health, welfare, and social agencies at all levels of government.[7] Nowhere can we find a better record of excellent relationship than that which exists between the Public Health Service and state health departments. Similarly, there should be established between state and local departments an equally good inter-agency relationship through joint conferences of state and local health authorities. In communities, inter-agency coördination can be best achieved through community organizations which have accepted crystallized objectives for a health program.

CONCLUSION

Public health is big business. And, while never before have people been as aware of health as they now are, we have still fallen short of creating a proper demand for the attainment and

maintenance of optimal health. Therefore, the entire health department staff must engage in a continuous program of good, well planned public relations through an inservice personnel relations program for its employees and by the crystallization of objectives known to all and implemented by specific services and responsibilities. Many media of public relations are available, but they must be attractively presented to be effective. The health department, working with all of the professions of the healing arts as well as with community leaders and various groups, must develop public opinion to demand the attainment and maintenance of optimal health.

Finally, the public must have confidence in the ability and work of the health department. It must be made to feel the need of the department and the services which it offers.

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John J. Sippy Memorial Fund

Walter H. Brown, M.D., of Palo Alto, Calif., Chairman of the John J. Sippy Memorial Committee, Western Branch, American Public Health Association, recently announced the vote of the Western Branch at its recent Annual Meeting in Los Angeles to establish a John J. Sippy Memorial Fund. This was believed to be the most suitable and practical form of memorial for the late Dr. Sippy, who was Health Officer of San Joaquin County Health District for many years, and a Past President of the American Public Health Association. It is the plan of the Western Branch that the fund would be used to provide a lecture to be given at the Annual Meeting of the Western Branch, preferably by a member of the Western Branch. The lecturer and the subject will be chosen by a committee appointed annually by the President of the Western Branch on the basis of some outstanding contribution in the field of public health.

According to Dr. Brown's announcement, the response to the proposal has been both spontaneous and gratifying. The Executive Committee of the Western Branch has already made an initial contribution from the limited funds of the Branch, and the past and present members of the staff of the San Joaquin Local Health District have made a substantial contribution of the funds remaining from those collected by them for a memorial plaque at the office of the District.

Dr. Brown has announced that members of the Western Branch and others who wish to contribute to this fund may do so by sending their gifts in care of Dr. Brown at 628 Guinda Street, Palo Alto, Calif.

Poliomyelitis in San Francisco, 1948

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IN consonance with the nation and the state, San Francisco last year experienced, from the standpoint of numbers, the largest epidemic of poliomyelitis in its history. Even though our statisticians can show that, calculated upon population, the morbidity rate for 1948 was less than that experienced in 1930, nevertheless 288 cases of local origin were reported during the calendar year. This is a record and parallels the nation's reported 27,658 cases, and the record total for the State of California of 5,804 cases.

This epidemic spread across the nation from east to west and particularly throughout the South. It entered California through the southern area, and gradually crept northward until the entire state was involved. Even though it developed into the largest outbreak recorded, there was no evidence of panic among the population. Never have the patients received such excellent educational advantages, splendid medical care, and adequate hospital facilities. Though facilities were taxed, adequate nursing care was provided, and physicians always seemed to be available. The poliomyelitis patients treated in San Francisco have never received better nor more complete medical care in the history of modern medicine.

In the periods of increased incidence of poliomyelitis, occurring in San Francisco in 1934, 1943, and 1945, the epidemic period began and ended within the calendar year. In 1930 and in 1948 the incidence exhibited a downward trend from the peak in October of each year, but the epidemic was not terminated until early in the following year. For purposes of this review of the recent epidemic, reported cases and deaths for a 12 month period from March 1, 1948, to March 1, 1949, have been selected to cover the full period of the epidemic, and, where necessary, information for the same months is offered for 1930.

Although the 314 cases reported in the 12 month period (1948–1949) exceeded by 29 per cent those reported in a similar period (1930–1931), the morbidity rate was lower; 36 per 100,000 for the recent period, 38 per 100,000 in 1930–1931. In California for the same period, 6,042 cases were reported with a case rate of 60 per 100,000.

In the local series of cases, 27 deaths occurred—8.6 per cent fatality for the group. Since all deaths occurring in San Francisco are chargeable to the records, the death rate is computed on the total of both local and non-local deaths. This total of 53 deaths produces a mortality rate of 6.0 per 100,000 population.

Distribution by sex shows 173 cases, or 55 per cent male, 141 or 45 per cent female. Of the 27 local deaths—13 or 48 per cent male, 14 or 52 per cent female. The case fatality rate for males was 7½ per cent—for females, 10 per cent.

Seventy-two per cent of the cases and 40 per cent of the deaths occurred in groups under 15 years of age. The epidemic apparently was felt most keenly in the primary school group, 5–9 years, with a total of 108 cases or 34 per cent of the total. It may be that this group

was under closer supervision at home and at school, that symptoms were recognized and treatment begun earlier, or that these children responded more readily to treatment. Whatever the underlying cause, the fact remains that only 3 per cent of these 108 cases resulted fatally—the lowest fatality in any age group. Three age classifications show a very high rate of mortality. In the high school group (15–19) were found but 5 per cent of the cases with an 18 per cent fatality. In the 30–34 years group were found 4 per cent of the cases and a 21 per cent fatality, and in the group of adults 35 years and over, there were 3 per cent of the cases and a fatality of 33 per cent. Actual ages for this last group were 35(2), 36(3), 38, 39(2) and 40, deaths occurring at ages 38, 39 and 40. There were no deaths in the under 1 year group, and only 4 per cent of the cases were found in that period.

In spite of recent scientific suggestions, involving sewage, milk, water, and insect vectors, the person must still be considered of prime importance in the transmission of this disease. From the very beginning rigid quarantine of close intimate contacts was enforced. During this outbreak, 484 individuals were quarantined, as members of 251 families in which a case of poliomyelitis had occurred. In addition, 114 non-family contacts were placed under quarantine. Thirty-four cases developed from known contacts. In twenty-three instances two members of the same household contracted the disease and in each of four of these homes, one of the patients died.

To Children's Hospital and the Isolation Division of the San Francisco Hospital fell the responsibility of caring for hospitalized cases, with 49 per cent of the cases at Children's and 40 per cent at Isolation. Seven per cent of the cases were either coroner's cases, dying before hospital care was available or were cases receiving home treatment. Twelve patients were cared for in other hospitals; Letterman taking 5, Veteran's Hospital 4, Alcatraz 1, and 2 going across the Bay—one to Highland and one to Oak Knoll. The case sent to Oak Knoll died there but the death is not included in any mention of fatality since it was not chargeable to San Francisco. Thirty per cent of the deaths occurred at Children's Hospital, and 39 per cent at Isolation.

The seasonal trend for the epidemic is established in the report of cases by date of onset. From July 3 to February 5 there was uninterrupted weekly reporting. The rise in incidence was gradual, reaching a peak in the week ending October 16, with a report of 23 cases. No significant change in this high level of incidence was noted until a month or six weeks later when a definite leveling off developed. As early as the middle of December, with reported incidence slowly but steadily declining, it was almost certain that the epidemic period would extend into the early part of 1949. Events proved the assumption true, for by the end of February, 27 new cases had been reported; 11 of them with onset dates in December of 1948.

The accompanying chart has been prepared on the 12 months' basis (1948–1949). It indicates the date of reporting by physicians, and the onset date of the disease as determined by the Health Department epidemiologists. The usual lag between the reporting date and the onset date is evident but not too exaggerated.

It is not possible to establish a rate of incidence in any one locality of the city because no population estimates for Census Areas are available. However, reports of cases through the epidemic period came from almost every district in the city, with not too great a concentration in any one area. The high-

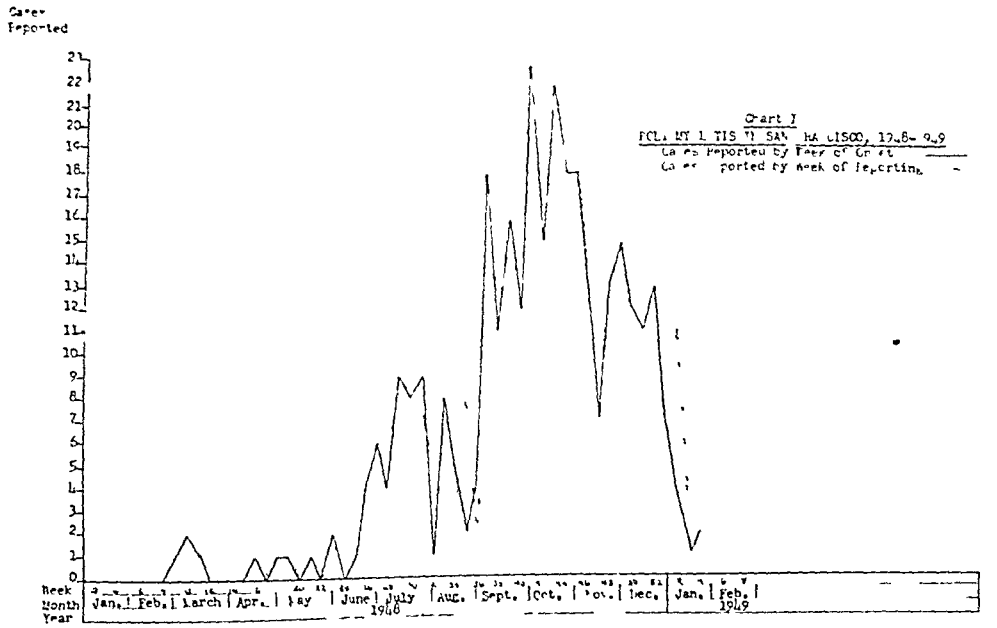


Chart I

est percentage of total cases reported was found in District L—22 per cent. This lies in the southeastern part of the city and includes several re-development projects and a varied racial distribution. Two districts, M and N, with 15 and 18 per cent of the cases respectively, constitute a large residential area; much of it lies in what is known as the Mission District, recognized locally as having an equable climate. District P, which runs from Lake Merced to Golden Gate Park and is one of the newer residential areas of the city, reported 9 per cent of the cases.

Although racial groups are concentrated very largely in definite localities, it is rather significant that only 12 cases were found in the non-white portion of the population; 4 among the Chinese, 6 in the Negro population, 1 Japanese, and 1 Filipino. This Filipino case resulted fatally and 1 death also occurred in the Chinese group of cases.

Attending physicians, making their original reports of poliomyelitis cases, classified the case as being of a bulbar type, a paralytic type or a non-paralytic type. Of the 314 local cases studied 42 or 13 per cent were of the bulbar type, 161 or 51 per cent fell into the paralytic group, and the remaining 111 or 35 per cent were non-paralytic. The degree of paralysis was not easily recorded but of the 161 cases classified as paralytic, 108 or about 67 per cent of them showed a definite paralysis while the remaining 33 per cent showed only muscle weakness or spasm. A follow-up of all cases, three to six months after onset, will doubtless reduce greatly the paralytic proportion.

As early as May non-local cases were being reported in excess of a normal expectancy, with evidence of the earlier beginning of the epidemic in other parts of the state. A total of 251 non-local cases were brought into San Francisco for treatment during the 1948–1949 period. Although a few of these cases were entered for care at Isolation Hospital and at Letterman, 82 per cent of them were taken to Children's for hospitalization. Nearly one-half of the deaths from poliomyelitis chargeable to San Francisco, occurred in this non-local group of cases.

About 4 per cent of the total cases in

the state were brought into San Francisco for treatment from outside counties. Adjacent counties, where hospital facilities were inadequate appear to be the greatest contributors to this group. For example, Marin County sent 86 per cent of its cases here, San Mateo County —21 per cent of its cases, Contra Costa County—23 per cent, and Santa Cruz County—56 per cent. Other smaller communities at greater distances from San Francisco and in which no hospitalization was obtainable, transferred many if not all of their patients to local hospital services. Among such communities was Stanislaus County which delivered 61 per cent of its cases to local care here. So many factors enter into the statistical analysis of these non-local cases that they cannot be considered representative of this locality, and it seems advisable to leave a detailed study to the community of origin or to the State Department of Health, for a complete analysis.

Case rates were computed for several counties for comparative purposes. As has been mentioned before, the morbidity rate for the entire state was 60 per 100,000—for San Francisco, 35.9. The adjacent counties of Alameda and San Mateo show rates of 27.5 and 53.9, respectively. Certain areas in the southern part of the state, where the epidemic was definitely more severe, show a high rate of incidence; for example, Kern—133.4, Los Angeles—83.4, and San Diego—62.0.

Even though the answer to poliomyelitis is not yet clear, we feel progress is being made. During this outbreak every precaution has been taken to prevent spread of the disease and to provide immediate diagnosis, early hospitalization and treatment, and to initiate a thorough and continued program aimed at rehabilitation. At no point in the program has the economic factor been permitted to interfere with the total care of the patient.

The Relation of Housing to the Incidence of Meningococcic Disease in an Outbreak in Oak Ridge, Tenn.*

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THE epidemiology of meningococcic disease is by no means completely understood. The following factors have been stated to predispose to infection: overcrowding, poor ventilation, fatigue, chilling, and lack of latent immunization. In military forces, various prophylactic inoculations and "lack of hardening" among new recruits are also said to contribute to the disease. In many places, the Negro rate has been appreciably higher than the white rate, and an excess of cases among males has been observed. In Oak Ridge, an unusual opportunity was presented to study housing in relation to this disease because the community consisted exclusively of a small number of dwelling types as a result of mass construction. The analysis which follows is concerned with an outbreak during the war period.

THE COMMUNITY

This federal reservation, known during the war period as "Clinton Engineer Works" and now designated "Oak Ridge Area" by the U. S. Atomic Energy Commission occupies a 92 square mile area in portions of Anderson and Roane Counties in Eastern Tennessee. From July, 1943, when workers began to take up residence in this formerly rural area, to January 1, 1944, the population had grown to 19,128. It continued to grow rapidly until it reached a peak of 74,930 on June 1, 1945. Thereafter the population declined, falling to 42,465 on December 31, 1946. These statistics include the military population which reached a peak of approximately 2,000 in the summer of 1945. The residential areas comprised two main parts, the larger in Anderson County, and the other about twelve miles removed in Roane County.

Houses, apartments, and dormitories which attained minimum standards of satisfactory housing were built to house approximately 46,000 persons. However, the rapid increase of workers required for construction and operation of the atomic plants necessitated in addition the construction of temporary dwellings for about 29,000 persons. Included among the latter group was the entire Negro population. These dwellings consisted of hutments, trailers, and barracks.‡

The hutments consisted of 16 ft.

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‡ All substandard housing has since been removed by the Atomic Energy Commission

square single room buildings in which were placed cots for four or five men or women. Shutters on the sides were used in place of windows. Lavatory and toilet facilities were provided in central bathhouses for groups of hutments, sometimes as many as 25 in a group. The trailers were set up primarily for families although some were occupied by persons of one sex. In general, trailer residents also were dependent on central bathhouses for toilet and lavatory facilities. Barracks, with sleeping cots laid side by side were erected for most of the enlisted men and for some civilians. These barracks in a sense were large-sized hutments. At the peak of operations, there were about 5,000 trailers and 16,000 hutment and barrack spaces.

The dwellings described above have been designated as "slum" in this report. This term is used in the sense of the definition set forth by the American Public Health Association Committee on the Hygiene of Housing, as an area in which 75 per cent or more of the dwellings show two or more basic deficiencies each. Such basic deficiencies were: (a) toilet outside structure and shared with other dwelling units, (b) bath outside structure and shared with other dwelling units, (c) water supply outside dwelling unit, and (d) room crowding: over 1.5 persons per room.[1-3]

The dwellings classified as "standard" in this report consisted of three general types: "semi-permanent" houses and apartments, "demountable" or "prefabricated" houses and apartments, and dormitories. The semi-permanent types were structures built on cement foundations with brick chimneys and central heating, but with walls constructed of cemesto boards. The prefabricated types were of more temporary construction, requiring less on-the-spot labor, but they satisfied the space and sanitary requirements of the A.P.H.A. standards. The dormitories were two-story wood and brick buildings made up almost entirely of single or double rooms. Each of them housed approximately 150 men or women, except during periods of temporary shortage when doubling up became necessary.

Rigid control of the flow of migrants into Oak Ridge brought as a by-product fairly exact statistics of the population in each housing area. Statistics by color were available as a by-product of racial segregation. Much personal information was available on records of employees and residents, but scattered in several offices. Unfortunately, statistics on such demographic characteristics as sex, age distribution, length of residence in Oak Ridge, and permanent residence were not compiled from these personal records. After it replaced the Army, the U. S. Atomic Energy Commission made estimates of a few population characteristics by sampling these records.[4] Among these characteristics were the age-sex distribution in January, 1948, and the median length of residence in several dwelling types from 1944 through 1947. For this study, the sample age distribution was adjusted with age statistics of school children available from earlier years. As will be indicated later, the unavailability of certain important demographic statistics was one factor leading to limited success in the analysis.

ANALYSIS OF THE EPIDEMIC

Twenty-six cases occurred in 1944 giving the high rate of 55 per 100,000 population; 27 cases occurred in 1945 with a rate of 40.* Five additional cases occurred in 1946, making a total of 58, all of whom were civilians.

The mean annual rates for 1944–1946 by dwelling type are compared in

* All case rates in this paper are "per 100,000 population." This phrase is not repeated in the text for brevity. All rates and their standard deviations, both for Oak Ridge as a whole and the several dwelling areas, were computed in terms of person-years of experience. The person-years statistics were computed from semi-monthly population statistics.

TABLE 1

Meningococcic Disease: Dwelling Types and Areas by Populations, Cases, Rates and Standard Deviations
Oak Ridge, 1944–1946

Dwelling Type and Area	*Mean Annual Population*	*Number of Cases 1944–46*	*Mean Annual Rate For 100,000 Population*	*Standard Deviation of Rate (σ_p)*
White standard				
Houses and apartments	25,292	10	13	4
Dormitories	8,092	4	16	8
Subtotal—white standard	33,384	14	14	4
White slum				
Roane County	5,865	9	51	17
Anderson County	9,808	21	71	16
Subtotal—white slum	15,673	30	64	12
Colored [a]				
Roane County	1,081	10	308	97
Anderson County	1,409	3	71	41
Subtotal—colored	2,489	13	174	48
All White, standard and slum	50,429 [b]	45 [c]	30	4
All slum, white and colored	18,163	43	79	12
Total	52,918 [b]	58 [c]	37	5

[a] All colored persons lived in slum dwellings.
[b] Includes full military population.
[c] Includes one case with unknown dwelling.

Table 1. The rate for persons living in standard dwellings, 14, differs significantly from the slum rate, 79, the probability of such a difference arising by chance being less than 0.001. Likewise, the difference between the white standard rate, 14, and the white slum rate, 64, has less than 0.001 probability of chance occurrence. The white slum rate not only differs significantly from the white standard, but also from the colored slum rate, 174, the probability of chance occurrence of the difference 174–64 being 0.002. Considering Roane County alone, the colored rate, 308, is significantly higher than the white rate, 51, the probability of chance occurrence of the difference being less than 0.001. However, the Anderson County Negro rate cannot be similarly compared due to smallness of numbers.

In other places, it has been observed that the Negro rate is appreciably greater than the white rate.[5–7] But only a few authors consider the influence of poor housing or other factors which might affect these attack rates. For example, Dauer found in his analysis of meningococcic meningitis in the District of Columbia during the years 1935–1936 that the rate for whites living in substandard housing was about as high as the rate among Negroes living under similar conditions.[8] However, at Oak Ridge, where housing types were more distinctly defined, the Negro attack rate was significantly higher than the rate for whites living in practically identical housing. Also, at the time of his study, Dauer did not have the benefit of the quantitative appraisal method for measuring the quality of housing subsequently developed by the A.P.H.A. Committee on the Hygiene of Housing.[2] It is probable that his use of groups of census tracts to delimit fairly large areas of white and Negro substandard housing resulted in a certain amount of variation in dwelling types within these areas.

These statistics by dwelling type and area indicate the influence of environmental conditions in Oak Ridge upon the rate of meningococcic disease. It is desirable, however, to distinguish among several possible environmental factors: overcrowding, chilling associated with

use of central bathhouses in inclement weather, and fatigue or chilling associated with work. Reports in the literature differ on the relative importance of overcrowding in this disease.[6, 9-14] It is possible that one of the causes of such disagreement stems from differing definitions and uses of the word "overcrowding." For example, one of the most precise studies supporting the importance of overcrowding was by Glover in a British Army camp.[11] But overcrowding as extreme as that defined by Glover did not, in general, exist among occupants of slums in Oak Ridge. Yet, as indicated earlier in this report, overcrowding was one of the criteria differentiating slum from standard dwellings, in accordance with definitions of the A.P.H.A. Committee on the Hygiene of Housing.

In the usual community, standard and slum housing are closely associated with the economic status of the occupants. Such an association did not exist appreciably in wartime Oak Ridge. Employees of construction companies were generally assigned slum housing, including personnel with high incomes or professional status, whereas operating company employees received preference for standard housing. Thus economic status was not a significant factor in accounting for the difference in rates between standard and slum housing. But work conditions, such as greater exposure to the elements plus possible fatigue resulting from long work hours in the rush of construction, might have contributed to the higher rate among slum dwellers.

Since men are more subject than women to exposure at work and to other work conditions, the magnitude of this factor might be estimated through the sex ratio. Certain studies of meningitis indicate that the sex ratio in the childhood years is close to unity, but that male cases are several times more numerous than female cases above age 15 or 20.[8, 15] This excess for males in the working years may be attributed to the work conditions of men outside the home. A breakdown of the Oak Ridge data by dwelling type, color, age, and sex is given in Table 2. It should be noted that male cases far outnumber female cases in the adult years in all three dwelling groups, white standard, white slum, and colored slum, but in the childhood years. the differences in numbers between the sexes are not so extreme. However, two restrictions apply in the interpretation of these data. First, the male population at risk in the slum dwellings probably exceeded the female population. Second, the differences in this fine breakdown are not statistically significant, possibly due to smallness of numbers.

TABLE 2

Meningococcic Disease: Cases by Age Groups, Sex, and Dwelling Types Oak Ridge, 1944–1946

White Standard

Age	Male	Female	Male/Female Ratio
0–19	3	5	0.6
20 and over	4	2	2.0
All ages	7	7	1.0

White Slum

Age	Male	Female	Male/Female Ratio
0–19	12	4	3.0
20 and over	13	1	13.0
All ages	25	5	5.0

Colored (Slum)

Age	Male	Female	Male/Female Ratio
0–19	0	1	0
20 and over	10	2	5.0
All ages	10	3	3.3

Total

Age	Male	Female	Male/Female Ratio
0–19	15	10	1.5
20 and over	28a	5	5.6
All ages	43a	15	2.9

[a] Includes one Oak Ridge case with dwelling type unknown.

Since incidence by age is important in the evaluation of the several factors just discussed, it is important to consider the age distribution of the cases. The mean annual rates for three broad age groups

TABLE 3

Meningococcic Disease: Cases by Age Groups, Dwelling Types and Rates Oak Ridge, 1944–1946

Age in Years	Dwelling Type: White, Standard	White, Slum	Colored (Slum)	Total	Mean Annual Rate Per 100,000 Population
0–14	6	15	0	21	72
15–29	4	6	7	18 [a]	33
30 and over	4	9	6	19	25
Total	14	30	13	58 [a]	37

[a] Includes one Oak Ridge case with dwelling type unknown.

TABLE 4

Meningococcic Disease: Populations of Permanent Residence by Cases, Median Lengths of Residence Prior to Onset, and Percentages of Oak Ridge Cases and of United States Population

Population of Permanent Residence	Oak Ridge Cases 1944–1946: Number	Median Length of Residence Prior to onset (in months)	Percentage	Percentage in United States Population 1940
Less than 2,500	25	4	43.9	43.5
2,500–9,999	9	5	15.8	8.9
10,000 and over	23	5	40.3	47.6
Total	57 [a]	4	100.0	100.0

[a] Does not include one infant born in Oak Ridge.

are given in Table 3. They varied from 72 in the below 15 age group to 25 in the over 30 age group, with a rate of 37 for all ages combined. When the combined rate was adjusted according to the 1940 United States population, it increased slightly from 37 to 39. Also as indicated in Table 3, the proportion of cases below age 15 to cases 15 and over was practically the same in white standard and in white slum dwellings.* Thus the variation by age was not markedly different from that reported in other studies on civilian populations nor anomalous in other respects. [7, 13, 15–18]

A related question is the development of immunity to meningococcic disease as a result of prior exposure to the organism. Certain studies have suggested greater susceptibility of persons migrating from rural to urban conditions.[5, 19] These observations could be, at least in part, manifestations of the effects of housing rather than susceptibility, since rural persons migrating to cities for the first time might, in general, have substandard housing. In addition, some authors have pointed out that in military life, new recruits are particularly susceptible to the disease.[20, 21] It seemed desirable to study separately the influence of each of the factors, housing, rural origin, and "newness" in the community.

Information regarding population of permanent residence was collected for the cases (Table 4). If similar information as to size of place of origin had been available for the population at risk, attack rates could have been calculated by place of origin. Since this informa-

* There were no cases among colored children. Prior to the middle of 1946, there were practically no colored children in Oak Ridge due to the lack of even the most meager colored family housing facilities. Considering the high rate in the colored adult population and among white children, it is a reasonable presumption that had colored children been present in Oak Ridge in appreciable numbers, the rate among them would have been very high.

TABLE 5

Meningococcic Disease: Median Length of Residence of Cases (Prior to Onset) and Population in Several Dwelling Types, Oak Ridge, 1944–1946

Group	Median Length of Residence in Dwelling Type (in months)		
	White		Colored
	Standard	Slum	(Slum)
Cases prior to onset	8	4	1
Population	17	5	—[a]
Ratio: *Case*/Population	8/17	4/5	—[a]

[a] Estimate unavailable.

tion was not available, it was of interest to compare the percentage distribution of the cases, by population groups, with the percentage distribution of the U. S. population by the same groups. Very close similarity was found. While certainly not conclusive evidence, this would perhaps indicate no greater likelihood of illness in one group than in another. Further analysis was done by comparing the intervals between arrival in Oak Ridge, representing arrival into urban conditions, and date of onset. If persons of rural origin were more susceptible, one might expect illness in this group to be relatively more concentrated in the early months after arrival. The fact that no significant difference was found in median lengths of residence prior to onset would also seem to indicate no difference in susceptibility.

It was thought possible that evidence of greater susceptibility might be found in persons of rural origin if this type of analysis were made separately for the various dwelling types. Accordingly, length of residence was studied in relation to place of permanent residence with the type of dwelling under statistical control. Again no significant relationship was found, i.e., differences in susceptibility could not be demonstrated, possibly due to small numbers.

A further index of comparison is presented in Table 5. The ratio was computed of the median length of residence prior to onset to the corresponding median for the population in each dwelling type. If in the slum dwellings, there were a greater probability of illness in the early months as contrasted to later months, this ratio would be lower in the slums than in the standard dwellings. However, the computed ratios, 4/5 in slums and 8/17 in the standard dwellings, do not indicate such a relationship.

SUMMARY

The present study was undertaken to determine factors associated with the incidence of meningococcic disease in Oak Ridge. In the course of the study, it was necessary to delimit the effect of factors such as housing, age, sex, race, and latent immunization. Mass construction of housing according to specific types facilitated classification of housing in accordance with definitions of the A.P.H.A. Committee on the Hygiene of Housing. Wide differences in rates among several housing groups were demonstrated.

The rate in the white slum group was significantly higher than the rate in the white standard group. In one slum area, the rate in the colored dwelling group was shown to be significantly higher than the rate in the white group having comparable housing. The effect of environmental conditions was considered, and an attempt made by statistical analysis to determine the influence of such conditions. These conditions, including both housing and work, were studied in relation to age, race, and the sex ratio. The problem of susceptibility and im-

munity was studied from two perspectives: (1) rural versus urban origin, and (2) interval of time preceding onset of illness after arrival into the urban conditions of Oak Ridge. Each of these perpectives was considered in relation to dwelling type.

Limited success was obtained in the analysis due to the unavailability of certain important population statistics. Also, it may be that in the precise analysis which was undertaken, additional significant relationships might have been found had larger numbers of cases been available. Since mass shifts of the American population may be expected to continue in the future, environmental conditions such as existed in Oak Ridge may be duplicated elsewhere. Thus, the statistical methods of approach used in this paper are offered as potential means for future study of this disease.

APPENDIX

The statistical test used to determine the significance of the difference between two rates p_1 and p_2 was

$$t = \frac{p_1 - p_2}{\sqrt{pq\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

referred to a normal probability table, where p is the probability of the hypothetical universe, $q = 1 - p$, and n_1 and n_2 are the populations in the two compared groups. With q assumed equal to unity, the denominator of this fraction becomes

$$\sqrt{\frac{m_1 + m_2}{n_1 n_2}}$$

where m_1 and m_2 are the numbers of cases in the two groups.

In parts of the analysis where interrelationships between classes of cases could be represented by fourfold tables, R. A. Fisher's exact treatment of 2 x 2 tables was used.[22]

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THE SEVENTY-SEVENTH ANNUAL MEETING

FEW who attended the sessions at New York October 24–28 will challenge the conclusion that this Annual Meeting was "tops" both in quantity and quality. The registration of over 5,300 exceeded by about 1,000 any previous registration in the history of the Association. There were 59 different sectional meetings, 39 of them sponsored by a single section, 6 by two sections, 5 by three sections and 9 by from 4 to 7 sections respectively. In addition there were held during the week 24 meetings of various committees of the Association. Those who have enjoyed the privilege of attending meetings of our three major Standing Committees cannot have escaped a thrill of pride in the service rendered by members of this Association on our committees throughout the year. Research and Standards has some 200 working members on its various subcommittees; Administrative Practice has 150; and Professional Education an almost equally large number.

The new method of electing members at large of the Governing Council by letter ballot, instead of at the Annual Meeting itself, proved highly satisfactory. A total of 1,370 valid ballots were cast, representing more than 70 per cent of the total fellowship roll, three times the number of ballots cast at the last Annual Meeting. Dr. Lowell J. Reed, as President-Elect, succeeds Dr. Wilinsky as President. The Governing Council named Dr. W. P. Shepard as President-Elect, a choice which was hailed with unusual enthusiasm. It is an honor, well deserved for many services to the general cause of public health and, particularly, by Dr. Shepard's inspiring leadership of the Committee on Professional Education. Dr. Herman E. Hilleboe was chosen as Treasurer, succeeding Dr. Louis I. Dublin who has served the Association in this capacity with remarkable devotion for a quarter of a century. The Annual Banquet was a warm and delightful "family affair," marked by the President's address, the presentation of certificates to a distinguished group of members who have completed forty years of association with us, and the award of the Sedgwick Memorial Medal to Dr. Henry F. Vaughan, whose name adds new luster to the roll of his predecessors who have received this honor for "distinguished service in public health."

Perhaps the most striking event of the meeting was the remarkable development of the new Section on Medical Care, created a year ago. This Section held eight sessions, five of them conjointly with other Sections. Its meetings were jammed to the doors. Specially notable sessions were those devoted to regionalization of medical services (illustrated particularly in Michigan and in the program of the Bingham Associates); to rehabilitation; and to a discussion of the British National Health Service (led by four distinguished English guests).

Three of our Sections celebrated birthdays this year. The Laboratory Section held a Fiftieth Anniversary dinner, at which a group of elder statesmen (with membership dating back to 1902) recalled the bacteriology and the bacteriologists of earlier days. The Industrial Hygiene Section (thirty-five years of age) presented a symposium under the title "Industrial Hygiene Marches On," besides Chairman W. G. Fredrick's address on the significance of the anniversary. The Epidemiology Section celebrated its Twentieth year in an even more impressive manner through a carefully prepared program on "The History of American Epidemiology"; and, particularly by a luncheon in honor of its most eminent Fellow, Dr. Haven Emerson, on the occasion of his seventy-fifth birthday. Dr. Emerson was, on the whole, distinctly "Queen of the May" this year, for in addition to this luncheon, he received two other signal honors, a Lasker Special Award at the Tuesday General Session, and the publication of a volume reprinting a collection of some of his more important contributions to the philosophy and the practice of public health.

It is impossible, here, even to mention more than a tiny fraction of the valuable papers presented at the 59 sectional meetings. As many as space permits will be presented to our readers in subsequent issues of this JOURNAL. Problems of air sanitation and the remarkable progress now under way in the eradication (not merely the *control*) of insect-borne diseases was reviewed by the engineers; the Academy of Pediatrics study of Child Health, the problems of prematurity and antepartum care, by the specialists in maternal and child health; those of food and nutrition during pregnancy, and of the use of isotopes in nutrition research, by the experts in food and nutrition; those of research in dental caries and of the effects of fluorination by the dentists.

Finally, a word should be said about the session on Integrating Mental Hygiene Concepts into Public Health Programs, sponsored jointly by the Health Officers, Public Health Education, and School Health Sections (as well as by the American School Health Association), in coöperation with the National Committee for Mental Hygiene. The audience at this session was probably the largest ever brought together in an A.P.H.A. sectional meeting. The speakers on this occasion fully convinced their hearers that the days of merely talking about mental hygiene are past. This thrilling new area of public health has now developed a group of leaders who not only have at their disposal a solid basis of sound knowledge of the human mind, and a demonstrated body of techniques; but also the ability to give us that knowledge in a language we can understand and to place those techniques actually at the disposal of the health officer in his local field of service.

CLOSE OF THE EMIC PROGRAM

THE termination of the EMIC program on June 30, 1949, closed a gratifying and encouraging chapter in the history of medical care in the United States.

As our readers are aware, EMIC was a wartime program operated by the state health departments to give medical, nursing, and hospital, maternity and infant care to wives and babies of enlisted men in the four lowest pay grades, about three-fourths of the armed forces. Funds were supplied by Congress through the Children's Bureau within the framework of the Social Security Act. The fact may not be as clearly realized that, at its height, this program covered one out of seven of all births taking place in the United States. Its purpose was to give a serviceman assurance that his pregnant wife and his coming child would have good medical care, and that the cost would be paid for from general tax funds. Men returning from World War II did not face unpaid maternity bills as did those of World War I.

It is probable that the most important long-range influence of the program was its emphasis on quality of care, which not only affected the mothers and infants who received direct services, but raised the local level of maternal and child care in entire areas, where that level had before been low. Minimum standards were established for hospital, maternity, and new-born services for the first time, in many parts of the country. The EMIC medical advisory committees appointed by state and local health departments were a potent force in maintaining a high quality of medical care under the program by recommending standards of prenatal care, establishing lists of consultants competent in various specialties, and by urging the general practitioners to call the consultants who were made available under the program. Many mothers whose husbands were not in service learned from EMIC patients what to expect in the way of good medical care throughout pregnancy, at delivery, and after the baby's birth. They learned for the first time what good health supervision and medical care for an infant really is. More widespread appreciation of the value of hospital care as a result of the EMIC program was partly responsible for the fact that in 1947 the proportion of births occurring in hospitals reached a new high of 84.8 per cent, as compared with 72.1 per cent in 1943, an increase of almost one-fifth. This occurred in spite of the great post-war rise in the birth rate and the shortage of new hospital facilities.

All physicians were paid for their services, and though in some parts of the country the rates of payment were less than is customary in private practice, in other areas the rates were better than the pre-war average. Hospitals were paid on a cost basis, and they—like the doctors—had no "bad bills."

Since the principle was established under EMIC that payment by the state agency must constitute full payment to the hospitals and physicians, it was essential that rates of payment to physicians and hospitals be made equitable.

The per diem cost formula for payment to hospitals was accepted, in general, to a surprising degree. Incidentally, the fact that there was no additional payment for surgery (such as caesarean section) included in the program avoided any possible incentive to unnecessary surgical interference.

One of the most amazing features of the EMIC was the facility with which every state health department established the machinery for administering this medical care program, involving practically all physicians and hospitals in the state. Many of the patients were moving from state to state, and it was not found difficult to arrange for continuing care, since the programs, almost identical in scope, were in operation in all states. Although there were many complaints at one time about too much federal insistence on reasonable uniformity of the state programs, most of the states welcomed the fact that they did not have to negotiate locally without full support of the CB, with respect to the basic principles involved. The Chil-

dren's Bureau, with the best medical advice it could secure, had, of course, to bear the ultimate responsibility of seeing that care was made available under conditions which were as equitable as possible to all concerned.

The average cost during 1943–1948 of EMIC maternity cases completed was $92.49 for medical and hospital care, and for cases of infant care completed it was $63.89. The $127,000,000 paid to state health departments bought for almost 1¼ million mothers and their infants the health supervision and medical care they needed. State health departments learned that the cost of administration in such a medical care program was very low compared to the costs for service. Although accurate totals for state and local expenditures for administration have not been compiled, the states usually estimated them as considerably less than 5 per cent. The Children's Bureau administered its responsibilities for the program with its small pre-war staff, and it had no new funds except for three auditors rather late in the program. There is an immense amount of valuable factual information available to the state health departments which have the time and the money to finance the analysis of their medical and administrative records under the EMIC program. A few such studies have already been initiated. Public health workers will find a mine of information about the administration of EMIC in the report of a study made by the School of Public Health, University of Michigan, while the program was in full operation. Dr. Nathan Sinai directed the study and reported his findings in "EMIC—A Study of Administrative Experience." One of his conclusions summarizes well the administrative lesson to be learned from this wartime medical care program. "EMIC serves as a striking demonstration of joint effort and of administrative resiliency. It would be hard to find another wartime program that grew to such comparatively huge proportions and still remained within the framework of an existing national, state, and local peacetime administration. The accomplishments in meeting the problems, disregarding the antagonisms, conflicts, and fears, are a monument to the combined contributions of medicine, public health, and the hospitals. Maternity and infant care were the goals; maternity and infant care are the achievements."

THE KEY TO SLUM ELIMINATION

THE Federal Housing Act of 1949 is the outstanding contribution of the First Session of the Eighty-first Congress in the field of domestic legislation.[1] That contribution is a major one, which will provide hundreds of thousands of American citizens with those living conditions which are essentially basic for physical and emotional health.

The new housing to be provided under this Act during the next six years will be, in most cases, based on slum clearance and will require extensive and detailed knowledge of present substandard housing conditions, in order that maximum results may be attained. It is, therefore, fortunate that our Association Committee on the Hygiene of Housing has completed the third of its series of reports on an *Appraisal Method for Measuring the Quality of Housing*.[2] The Method of Appraisal developed in these reports gives us a reasonably complete and accurate quantitative rating of the character of each home and of a neighborhood as a whole. It provides the soundest basis for specific legal control of an individual structure; and the necessary background for wise community planning.

This procedure has been endorsed officially by the U. S. Public Health Service which is prepared not only to advise health officers, housing and redevelopment

authorities, and planning boards as to its application, but also to provide specific training for the men who are to direct a survey, either at Atlanta or in any locality where sufficient demand exists. The actual survey may be carried out by members of the regular inspection staff of any competent local health department, as has been demonstrated in over thirty cities, from Portland, Me., to Los Angeles, Calif. It is more and more widely recognized as a necessary continuing function of the local department of health.

The Committee on the Hygiene of Housing expects to continue its study of the Appraisal Procedure with a view to simplifying it still further. There are, however, no easy short cuts in the measurement of the factors involved. The data in the 1940 Census as to "structures in need of major repairs" have proved wholly unreliable; and the 1950 Census item, which we understand will record "dilapidated" can only add further to confusion. It is quite impossible to obtain any reliable data on this point from untrained census enumerators. Nor have the costly "survey programs" offered by private consultants proved of substantial value.

Housing is a primary health problem. The American Public Health Association committee has spent more than $50,000 in developing a procedure for the Appraisal of the Quality of Housing, based on fundamental health needs, which has been demonstrated as practical and reliable. Housing agencies may be under considerable pressure to adopt other procedures which are supposedly simpler but cannot yield valid and significant results. Where housing surveys are contemplated, the health officer is well within his rights in urging that the task be approached along sound scientific lines.

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EUROPEAN MORTALITY RATES

A RECENT statistical report of the World Health Organization[1] contains a highly suggestive review of the death rates of fourteen Western European countries, from 1901 to 1947.

In 1901, the spread between various national rates was considerable. The lowest rates of deaths per 1,000 population were in Norway (15.0), Denmark (15.7) and Sweden (16.0). The highest were in France (20.1), Finland (20.6), Portugal (20.9), Italy (22.0), and Spain (27.8).[2]

In 1947, the lowest rates were reported for the Netherlands (8.1), Norway (9.3), and Denmark (9.7). The highest rates were reported for France (13.0), Belgium (13.1), Portugal (13.3), and Ireland (14.9).

The greatest reductions in the period were 58 per cent for Spain, 53 per cent for the Netherlands, 48 per cent for Italy, and 45 per cent for Finland. The lowest rates of reduction were 27 per cent for England, 24 per cent for Belgium, and 13 per cent for Ireland. That states with initially high rates, such as Spain, Italy, and Finland should show marked proportional decrease is natural; but the record for the Netherlands is highly creditable. That of Ireland is the most discouraging phenomenon in the picture.

A specially interesting feature of this tabulation is the effect of the war years.

Only five states showed clear evidence of such an influence, as indicated below.

	Highest Rate	*Year*	*Excess over Pre-war Rate*
Finland	19.0	1941	54%
The Netherlands	15.3	1945	53%
France	18.5	1944	25%
Belgium	16.1	1940	23%
Italy	15.9	1944	19%

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WHO Foreign Study Fellowships

The World Health Organization is offering in 1950 9 to 12 fellowships for foreign study in the field of health to students from the United States. A Fellowship Selection Board, set up by Surgeon General Leonard A. Scheele, consists of Walter A. Bloedorn, M.D., Association of American Medical Colleges; Hugh Leavell, M.D., American Public Health Association; and Joseph W. Mountin, M.D., Public Health Service; with H. R. O'Brien, M.D., of the Public Health Service as secretary.

For 1950, applications will be considered in the fields of public health administration, malaria, tuberculosis, maternal and child health, venereal diseases, sanitation, nutrition, and mental health.

Applicants must be engaged in some form of full-time public health work, including medical or nursing education. In evaluating applications the Board will take into account the ability of the individual and the value to his community or his country of the training he will receive abroad. Special consideration will be given to such persons as those in charge of training centers or teachers in medical or other schools (especially in Preventive Medicine or Tropical Diseases). An advanced degree or Board certification is desirable. Knowledge of the language of the country to be visited is valuable. In general, non-federal workers will be preferred.

Grants are for periods of from 2 or 3 months for observation, up to 12 months for study. WHO provides transportation and a monthly stipend of $200 for those studying in one place, $300 for those moving about. For the 1950 fellowships, applications must be filed in triplicate by March 1, 1950. Application blanks may be obtained from the Educational Programs Branch, Office of International Health Relations, U. S. Public Health Service, Washington, D. C.

Seven fellowships already awarded for 1949 include the following:

Teachers of preventive medicine in undergraduate medical colleges:
Lloyd Florio, M.D., University of Colorado
Edward A. Krumbiegel, M.D., Marquette University

Tuberculosis rehabilitation:
William A. Winn, M.D., Tulare-Kings County (California) Sanatorium

Training of dental hygienists in New Zealand:
John Fulton, D.D.S., U. S. Children's Bureau

Engineering curricula in Europe:
Professor Harold B. Gotaas, University of California

Nutritional study in Great Britain:
A. Hughes Bryan, M.D., University of North Carolina

Local Health Officer:
John Thrash, M.D., Muskogee County, Georgia

Clearing House on Public Health Salary Information and Personnel Needs

A THIRD STATE SALARY STUDY

The third in a series of annual studies of state health department salaries made by the Public Health Service in coöperation with the Association of State and Territorial Health Officers and the American Public Health Association has just been released. As in earlier reports the material is shown almost entirely in tabular and graphic form with little interpretive analysis. The study thus constitutes in effect the raw data from which can be selected material for further analysis to meet specific needs. As an aid to specialized analysis, tabular data are shown by Federal Security Regions.

Aside from the fact that statistical personnel are included for the first time, the present report is significant chiefly because it is now possible to spot at least short-time trends. There is no questioning the fact that public health salaries are rising; whether sufficiently or fast enough, to be determined by specific local or regional conditions. Median salary ranges for each group have increased; from 7 per cent for professional laboratory workers to nearly 50 per cent for sanitation personnel apart from sanitary engineers. Medical personnel salaries, apart from health officers, have increased nearly one-fourth in the 3 year period.

Program directors' average salaries have increased from 11 per cent for laboratory directors to 20 per cent for directors of local health services, of tuberculosis control, and of public health nursing. Average salaries of health officers increased 18 per cent. Probably for reasons not far to seek, among medical program directors the lowest paid and the smallest percentage increase were reported for directors of maternal and child health services; similarly the lowest paid of all program directors in 1947 were public health nursing directors, although by 1949 they had yielded this distinction by a small margin to vital statistics directors.

In the current study 6 state health officers are reported with salaries of $12,000 or more; in 1947 there were but 2, and in 1948, 4. The latest study reports 18, or more than a third of the state health officers, receiving $10,000 or more annually; in 1947 the number was 4, and in 1948 it had reached 14. These figures are but sample illustrations of the type of material that can be found in this series of studies. Comparisons in terms of neighboring states, similar population groups, similar economic status, or comparable positions can be selected from this material for use with appropriating and citizen bodies. For example, the relative rank of a state in terms of the salary paid to the different types of program directors may have a number of implications not all of which point to disparity.

This latest study is available for distribution in limited quantities from Committee on Professional Education, A.P.H.A., 1790 Broadway, New York 19.

LABORATORY SALARIES

Salary information for professional laboratory personnel of state health departments as of July, 1949, has been compiled by C. A. Perry, Director of Laboratories of the Maryland State Health Department and is published in the September *The Public Health Laboratory*. This, it will be remembered, is the Bulletin of the Conference of

State and Provincial Public Health Laboratory Directors. This material is a valuable supplement to the state salary study discussed above in that it analyzes salaries for laboratory workers in five position classifications below that of director. It also shows position titles separately for those states whose classifications do not fit the pattern adopted. The editor of *The Public Health Laboratory* is Edmund K. Kline, Box 573, Olean, N. Y.

A SECOND SURVEY BY LOUISIANA

The Louisiana State Health Department in January, 1948, made a telegram survey of salaries for 30 classes of positions common to state health agencies. As of September, 1949, it repeated the survey, this time for 71 different classes of positions, many of them found in only a few of the 43 states included in the study. A careful comparison of salaries for titles that are common to the two studies should throw some light on whether it has been a useful means of making state fiscal officers "salary conscious" and thus presumably of raising the general level of Louisiana's public health salaries. It is to be supposed that the study is available from the Louisiana Merit System, Capitol Annex, Baton Rouge, La. The revised compensation plan effective January 1, 1950, is definitely offered to readers.

HOSPITAL SALARY SURVEY

The 4th consecutive annual hospital salary survey covering the year 1948 was recently published by the American Hospital Association. "For all categories of personnel surveyed," it says, "salaries increased approximately 10 per cent in 1948 over 1945." Only 5 categories of personnel are included but they represent the large majority of hospital employees, general duty nurses, untrained women, untrained men, clerks, and practical nurses. Of more than 4,600 hospitals receiving questionnaires 53 per cent replied. Detailed analysis of data by state and region, by size of hospital and community, by type of hospital and type of ownership results in 131 statistical tables.

OCCUPATIONAL OUTLOOKS

Recruitment, counseling, and personnel officers should be aware of the fact that the Bureau of Labor Statistics of the U. S. Department of Labor has an occupational outlook research program. Through this program it attempts to make information generally available on relative opportunities in various occupations. Although it is largely devoted to industrial occupations it has limited relevance for public health as well.

Bulletins 863 and *881,* published in 1946, are on Postwar Outlook for Physicians and Factors Affecting Earnings in Chemistry and Chemical Engineering respectively. Currently in press is Employment Outlook for Engineers.

The Occupational Outlook Handbook — Employment Information on Major Occupations for Use in Guidance is a comprehensive 454 page report originally prepared for use by the Veteran's Administration, but brought up to date in 1949 for general use in guidance agencies. Each of these is available from Superintendent of Documents, Govt. Ptg. Office, Washington 25, D. C., the bulletins at 10 cents each, the book at $1.75.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Mental Hygiene in Public Health —*By Paul V. Lemkau. New York: McGraw-Hill,* 1949. 396 pp. Price, $4.50.

This volume is largely based on Dr. Lemkau's course in mental hygiene, and its dual dedication to Adolf Meyer and Allen W. Freeman, indicates its two-fold source of inspiration in the visions of these leaders of psychiatry and of public health.

Mustard has told us that "a health problem becomes a public health responsibility if or when it is of such a character as to be amenable to solution through systematized social action." These conditions are fully met in the challenge presented by mental and emotional abnormalities; and mental hygiene was listed by eight of our state health departments in a recent issue of this *Journal* as among their chief program objectives at the present time. Connecticut established the first division of mental hygiene in a state department in 1920; and the U. S. Public Health Service created a division of mental hygiene in 1930. Dr. Lemkau points out that the relations between psychiatry and public health have been for the most part "immature and perhaps idealistic." ("Immature" is a harsh word, in the language of modern psychiatry!) This is due on the one hand to the fact that most psychiatrists of an older generation, preoccupied with the advanced and often hopeless case, had nothing to offer along lines of prevention; and, on the other hand, to the lack of training in most schools of public health of the kind offered by Dr. Lemkau at the Hopkins.

Dr. Lemkau's basic thesis is, of course, that the human personality is of primary importance in individual and social health; and that this personality, at a given moment, is the result of interaction between the hereditary basis of personality structure and the total of life experiences impinging on that structure. To control these environmental factors is a legitimate and ultimately inescapable task of public health. The reviewer believes that the modification of such stresses and the guidance of the individual in meeting them successfully is sure to be recognized ultimately as even more important (even if also more difficult) than the measures now taken for the prevention and early treatment of infectious and nutritional diseases.

The bulk of Dr. Lemkau's book is devoted to an exposition of the nature of this problem as it should be understood by the health officer. It is not highly technical psychiatry (or the present writer could not have undertaken its review). Neither is it one outline of health department machinery for mental health services. It is a clear and non-controversial outline of what the common emotional maladjustments are, and what personal counseling and family and social adjustment may do to create and preserve mental health. These problems are reviewed as they present themselves at chronological phases of the evolution of the individual. Chapters deal, in detail, with the Prenatal and Natal Period, The Period of Infancy, The Pre-School Period, The School Period, The Adolescent Period, The Young Adult Period, The Period of Middle Age and the Period of Old Age. This type of presentation will appeal directly to the various health department specialists in obstetrics, pediatrics, school health, venereal disease control, tuberculosis control, geriatrics, and the like. In many cases, the points made

are illustrated by well chosen and effective case histories.

There is nothing startling or dramatic about this book. It will not make the headlines, like a speech by Chisholm. We believe, however, that the public health worker, physician, nurse, educator, engineer, who reads this book will find his understanding of basic mental hygiene problems clarified and his recognition of those problems quickened. The success of every health department clinic, in whatever field, depends on mental hygiene. The core of the work of every good public health nurse is mental hygiene. Such new procedures as childbirth without anesthesia, and rooming-in for infants are primarily mental hygiene technics. The effectiveness of all health education depends on mental hygiene. The sound administration of a health department and the public relations of such a department require the applications of mental hygiene.

To all our readers then—and also to the intelligent citizen who is not a professional public health worker—we heartily recommend *Mental Hygiene in Public Health.* C.-E.A. WINSLOW

Office Management for Health Workers—*By Frances King and Louis L. Feldman. New York: Commonwealth Fund,* 1949. 158 pp. Price, $2.25.

With the progressive extension of public health activities and services to the relatively unsettled and rural areas of the nation, the need for specific instruction in basic office management has become acute. While in the cities and urban areas a public health department often has available the advice and facilities of well organized and experienced governmental units, as well as commercial resources, the outlying areas have been left to their own ingenuity and imagination in the organization and operation of the unavoidable office management functions.

Office Management for Health Workers provides a valuable resource and reference book for public health workers who must set up administrative procedures and office facilities. The elementary guideposts are carefully outlined, with helpful suggestions as to the practical aspects of operations. Written in a clear and exceedingly readable style, public health administrators will gain from reading this book a stimulation to perform tasks the "easy" way.

The authors begin by presenting some cogent observations relative to the operation of an office. Following are matter-of-fact outlines of the physical set-up and equipment of an office, the fundamentals of form design and a discussion of files, reports, records, histories, surveys, and certain other operations that transpire in public health and, indeed, in most offices. While some of the material in the book appears somewhat obvious and routine, no doubt it is helpful, even to veterans, to review the accepted procedures and well established methods which seldom have been documented. But the principal value of a study of the book will be for the beginners in the office management field who will find in it a wealth of practical information. ROBERT G. WEBSTER

Rural Welfare Services—*By Benson Y. Landis. New York: Columbia University Press,* 1949. 201 pp. Price, $3.00.

Dr. Landis, who is now Executive Secretary of the Committee on Town and Country, has worked on the betterment of rural life for many years. Against a background of the general sociology of rural life and the trends in its development of social services, his book gives succinct descriptions of the principal federal, state, and local programs—official and voluntary—designed to promote security and "the good life" for country dwellers.

The description of the administration

of the programs of old age and survivors' insurance, veterans' benefits, and public assistance, categorical and general, are relevant for workers in city and country alike. Red Cross activities and voluntary efforts in youth services and recreation are described with enthusiasm. The fundamental and far-reaching services of the Farmers Home Administration and the Agricultural Extension Service, on the other hand, are given less relative attention perhaps than is warranted.

Considerable space is devoted to health services in rural areas. The data on public health organization and coverage are well presented, but the account of the difficulties in rural medical care is somewhat topical, rather than comprehensive. It is regrettable to find the vast and basic subject of nation-wide medical care insurance described as having been "agitated" and disposed of in a terse six lines.

As a brief manual for health workers who want a birdseye view of welfare programs in their communities, the book should prove useful.

MILTON I. ROEMER

My Place To Stand—*By Bentz Plagemann. New York: Farrar, Straus,* 1949. 241 pp. Price, $2.75.

This is a psychological biography with a strong religious bent of the process of reaching maturity through the experiences of the Navy and poliomyelitis. The author is a sensitive and introspective individual. The book is described as a "biography of an illness" and part of it certainly is. The first 175 pages are the account of the problems of adaptation to the war and impending combat. A substantial part is concerned with life at the Warm Springs Foundation.

The book is most interesting, but it is not comfortable to read. The discomfort arises from two sources. Rapid swings from philosophical heights to the mundane or even trivial is one source. The other is that the reader rather often has the feeling that he is eavesdropping on a mental therapy session. A trivial irritation arises from the consistent misspelling of "tuberculous."

Several concepts will provoke discussion among physicians and public health workers. There is an opportunity to gain insight into the medical care in the armed forces and how it is regarded by a patient. Character changes resulting from the disciplines of an attack and recovery from "polio" are explored and changes in President Roosevelt are considered. The possibility of an attack of poliomyelitis being in part due to psychic factors or some other guiding force is provocative. It is interesting to note that the incubation period seems to have been the usual one.

The work is useful in stimulating the reader to do some thinking about his own relevant notions and in extending the understanding of readers regarding infantile paralysis. Writing the volume was probably a valuable experience for the author in understanding himself. It could be an interesting case study for inservice training sessions for a variety of social scientists.

ROSCOE P. KANDLE

Epilepsy and Convulsive Disorders in Children—*By Edward M. Bridge, New York: McGraw-Hill,* 1949. 670 pp. Price, $8.50.

Epilepsy is primarily a disorder of childhood, yet, judging by volume of writing, pediatricians have been little interested in it. Jean Taxil's 300 page book, *De L'Epilepsie—aux petits enfants,* printed in French in 1602, has had no worthy successor. The book by Bridge makes good much of this deficiency.

The original contribution made by this work is statistical, a study of 742 children with seizures seen at a clinic at the Harriet Lane [illegible]
This core of solid
realistic and bala

etiology and the various manifestations of epilepsy, particularly the physical and psychological aspects.

The general application of these data is somewhat impaired by the clinic selected cases, institutional patients, and those of the "private patient" category being excluded. Also much of the conclusion-based information was gathered prior to the discoveries in neurophysiology and drug therapy of the last few years. Thus, abnormal cerebral circulation is still viewed with suspicion as an immediate cause of seizures.

Electroencephalography receives a well written 20 page discussion, but the lessons of this technique are not integrated with the background thinking of the book. The sections on the social personality and psychological problems are particularly well done—and rather overshadow discussions of direct therapy. Thus, against 60 pages given to psychotherapy, there are 8 on the use of drugs, of which bromides receive the most attention and mesantoin only passing reference. Some 45 pages are given to the now little used fasting and ketogenic diet.

The attitude toward epilepsy is refreshingly optimistic and constructive. A mass of useful information is presented. The language is simple and clear and not above the understanding of the intelligent lay reader, whose interest presumably will be stimulated by numerous poster-like illustrations. The 36 figures are clearly drawn and pertinent. References conclude each chapter and are assembled at the end. Altogether this book should be in the hands not only of pediatricians and doctors, but large portions can be read with benefit by social workers, school teachers, and all those who deal with seizured children.

WILLIAM G. LENNOX

Heating, Ventilating, Air Conditioning Guide, 1949—*New York: American Society of Heating and Ventilating Engineers,* 1949. 1,384 pp. Vol. 27. Price, $7.50.

This, the 27th Edition of the Guide, brings previous issues up to date. Twenty-four of the 52 chapters have had appreciable changes or additions made to them. The chapters on "Physiological Principles," and "Air Conditioning in the Prevention and Treatment of Disease," should be of interest to the general public health worker. The balance of the volume should also be of interest to the engineering personnel on the public health staff—including the industrial hygiene engineer, whatever be his assignment.

As in previous volumes, principles are considered first, followed by a discussion of human reaction to atmospheric environment. Methods of computing heating and cooling loads; heating systems and equipment; air conditioning; and special applications complete the list of general topics. Each chapter is followed by an extensive bibliography, including 1948 references. Not least valuable is the final quarter of the volume, some 400 pages, which is given over to advertisement of equipment, materials and publications. FRANCIS B. ELDER

A Boy Grows Up—*By Harry C. McKown. (2nd ed.) New York: McGraw-Hill,* 1949. 333 pp. Price, $2.40.

Helping the teen-age boy in his transition from boyhood to manhood is a most worthy objective. The success of this book in its first (1940) printing has inspired McKown to the additions and rewriting which make this second edition of even greater usefulness. His case stories are well chosen, his practical advice good, and his twenty-page bibliography is one of the best we have seen. It is the kind of book, though, that a youngster would read for profit rather than pleasure.

Lest the volume—because of its title—be considered merely a social hygiene compendium, let us say that it deals with

manners, recreation, vocational guidance, health, and ethics. In fact its organization is more sociological than physiological. But such old reliable subjects as reproduction, petting, and getting along with the "whimsical female" are dealt with soundly and accurately, although with occasional reversions to ancient attitudes. In one of his paragraphs on "Your New Maturity" (p. 210), for example, the author says, "Having intercourse with prostitutes . . . is the main source of several body-destroying, mind-destroying, and soul-destroying diseases." That is all. He does not name the diseases nor give any better defined reference.

The book is one that might well be included in every library—home, church, or school—where boys either browse or borrow books. Many lads, however, will wish it were less textbookish and more "whodunit" in style.

RAY H. EVERETT

Food Poisoning—*By G. M. Dack. (rev. ed.) Chicago: University of Chicago Press,* 1949. 184 pp. Price, $3.75.

Written by an author more familiar with the wide scope of the field than any other in the country, this revised edition summarizes present knowledge of food poisoning in a comprehensive and detailed manner. The author discusses many laboratory procedures which have been proposed for use in investigating outbreaks due to the various agents discussed. His personal experience in the use of many of these makes his appraisal of them invaluable to the reader.

The general treatment is in language understandable by the average reader, but many may become entangled in the scientific details and find it necessary to leave portions to those with special training. The book is, therefore, invaluable to the epidemiologist and laboratory worker, who must discover the etiology and source of food-borne outbreaks, and collect information which can guide, control measures. It can be read with profit, however, by many other health workers, including sanitarians and food inspectors.

Selected references to the literature make it possible for the reader to explore most of the subjects further and obtain additional details when needed. There is an author index as well as a subject index.

ROY F. FEEMSTER

A Baby is Born—The Story of How Life Begins—*By Milton I. Levine, and Jean H. Seligmann. New York: Simon and Schuster,* 1949. 54 pp. Price, $1.50.

Public health people and educators will be able to tell mothers, "There is a new book that will help answer the 'How did I get here?' questions." Much credit for its attractiveness goes to Eloise Wilkin, artist, whose illustrations of babies and children are charming. It is written primarily for early elementary years.

The really inquisitive child may be interested in the fish, hen, and cow sequence of how the sperm gets to the egg. What we have here is a variation of the birds, bees and butterflies theme. Since today in our urban culture relatively few children have an opportunity to observe the mating of fish, hens, or cows, it is doubtful whether such comparisons really help explain the puzzle of human coitus. The experience of some reproduction education specialists shows that many little children are quite willing to skip such explanations.

Those who believe in the concept of "developmental tasks" will question the "telling everything" to very little children. Growth of a warm, satisfying child-parent relationship is of much greater importance in reproduction education (and in later years in genuine sex education) than "all the facts."

It might be well if people who were going to write books on sex education would ask psychologists for answers to such questions as these: Do diagrams of

the reproductive organs of man and woman mean much to little children? Should we write about "pains" or "contractions" or discover another way of explaining birth? Is the explanation of human coitus either necessary or accurate enough to be helpful to youngsters? Parents say: "We were told little or nothing. Should we tell our boys and girls everything?" Parents need help on developing a philosophy about reproduction and sex education more than they do books on the "facts." This book is essentially one that deals with the "facts."

It is good to find the love of father and mother for each other and their wanting children emphasized. Depending on their cultural backgrounds, some parents will find the book useful; others will not be able to use parts of it.

DAVID B. TREAT

Public Health and Hygiene—*By Charles Frederick Bolduan and Nils William Bolduan (4th ed.) Philadelphia: Saunders,* 1949. 423 pp. Price, $4.25.

"Public health is purchasable; within natural limitations a community can determine its own death rate." This statement by Biggs, so aptly utilized in the text by the authors, gives the key to the *Why* of Public Health.

As an elementary treatise, *Public Health and Hygiene* will prove invaluable to the beginning student and to the laymen who wish a painless method of studying the subject.

The organization of the book into the five main sections is quite logical. First, the general introduction offers a valuable survey of medical history, most interestingly developed, with the fundamentals of bacteriology, entomology, and nutrition. However, Chapter 8 on Social and Economic Factors in Public Health is the highlight of this first section.

The More Important Communicable Diseases, Section 2, are concisely described and their relative importance revealed. The discussion of causative agents and their mode of spread aids greatly toward the better understanding of control methods. The Important Noncommunicable Diseases and Conditions of Section 3 are treated in the same terse manner.

Section 4, Community Hygiene, covers the elements of environmental sanitation, relating these to industrial hygiene. Maternal and Child Hygiene, School Health, Public Health Nursing, and Health Education are considered in this overall survey of community problems.

Health Administration, comprising the last portion of this study, evaluates administrative control of health measures in terms of organizations, economics, and methods. It gives the reader substantial insight into the federal and state administrative functions in the field of public health, without losing his interest in a maze of bureaus, departments, etc.

One is a bit disappointed that more was not written on a positive approach to mental health, and the importance of the family in preventing mental difficulties. Likewise, the notes on health education failed to emphasize the importance of coördinating community organizations, facilities, and individuals to work together toward the ultimate goal of optimal health for all.

The authors should be congratulated on this study, so pertinently packed with informative data, statistics and observations on the general field of public health.

W. W. STILES

Accident Facts—*By the National Safety Council. Chicago: National Safety Council,* 1949. 96 pp. Price, $.60.

Public health workers again are indebted to the National Safety Council for the 1949 edition of *Accident Facts.* The increasing recognition of accident prevention as a fruitful and proper function for health departments makes this book particularly useful. The terms used in this publication are carefully defined.

Dickinson's claim that accidental deaths cause more loss of working years than any disease is presented.

This is an outstanding record of the epidemiology of accidents where one will find geographic, seasonal, age and occupation studies, together with estimates of frequency and of severity in various occupations. According to this record, the frequency rate for occupational injuries was down 13 per cent from the preceding year, 1947, and the severity rate down 9 per cent. The downward trend of motor vehicle deaths on a mileage rate basis continues to be encouraging. REGINALD M. ATWATER

The Natural History of Mosquitoes—*By Marston Bates. New York: Macmillan,* 1949. 379 pp. Price, $5.00.

This beautifully written volume is an interesting and orderly presentation of facts concerning the environment and behavior of mosquitoes. Because of the necessity of identifying and controlling species which are dangerous vectors of disease, a large literature has accumulated concerning these and other aspects of mosquito lore, including ecology and physiology. Much of this incidental information is sequestered in specialized scientific journals rarely seen by students of biological theory. Dr. Bates invites attention to this rich but relatively unexploited source of knowledge about mosquito behavior. He believes this should be especially valuable to those interested in speciation, taxonomy, organic diversity and evolution, population dynamics, etc.

The content of the book falls into three main categories. Following the introductory section, the first eleven chapters—almost three-fifths of the total text—deal with the environmental and functional responses of mosquito adults, eggs, larvae, and pupae. The next three chapters—one-sixth of the text—are an excellent discussion of the relations of mosquitoes to other organisms, especially in the vectoring of pathogens. The third section presents the species problem, information concerning classification and distribution of mosquitoes, techniques in mosquito study, and the strategy of mosquito research as the author views it. The Appendix includes a systematic list of mosquito species, a 45 page bibliography, and an index.

Throughout the book, the factual content is enlivened and enriched by the author's comments, interpretations, and conclusions, the fruit of his unhindered reflections in the llanos of Colombia.

While avowedly written to catch the eye of "academic biologists," *The Natural History of Mosquitoes* is highly recommended to medical and other entomologists, parasitologists, malariologists, virologists, epidemiologists, and students of tropical medicine and hygiene. They are certain to find passages of special interest to them, but the reviewer's bet is that they will read the entire book with interest and appreciation. JUSTIN M. ANDREWS

Toxic Eye Hazards—*A Manual Prepared by the Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology—Publication 494. New York: The National Society for the Prevention of Blindness,* 1949. 101 pp. Price, $1.00.

The injurious effects of solid substances striking the eyeball have long been recognized in the American safety movement. In certain segments of American industry, great strides have been made in the protection of the workers' eyes against such solid flying materials.

The tremendous growth and complexity of the chemical industry has served to increase the eye hazard in this industry. For a long time there has been a real need of a compilation of the effects of chemical substances on the eyes.

The present pamphlet is very timely in that it fills this gap in the American industrial hygiene literature. The effects of organic compounds, inorganic compounds, and miscellaneous compounds and materials are set forth in tabular form, along with references to the basic information from which the tables have been prepared.

A very brief outline of emergency and first-aid procedures in chemical eye injuries serves to add to the value of this pamphlet.

The section entitled "A Well-Organized Eye Protection Program" presents a few of the fundamentals of the approach to protection. In this section two valuable tables are presented which indicate the type of protective equipment desirable in certain occupations and in certain chemical exposures.

For the specialist in the field of eye protection, as well as for the safety engineer in the chemical industries, the pamphlet fills a real need.

LEONARD GREENBURG

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCES IN PEDIATRICS. Vol. 4. Edited by S. Z. Levine, Allan M. Butler, L. Emmett Holt, Jr., and A. Ashley Weech. New York: Interscience, 1949. 316 pp. Price, $6.50.

AMERICAN FAMILY, THE.—A FACTUAL BACKGROUND. Report of the Inter-Agency Committee on Background Materials, National Conference on Family Life, May, 1948. Washington: U. S. Gov. Ptg. Office, 1947. 457 pp. Price, $1.25.

CHICAGO-COOK COUNTY HEALTH SURVEY, THE. Conducted by the U. S. Public Health Service. New York: Columbia University Press, 1949. 1267 pp. Price, $15.00.

CLINICAL DIAGNOSIS BY LABORATORY EXAMINATION. John A. Kolmer. New York: Appleton-Century, 1949. 1212 pp. Price, $12.00.

DENTAL CARIES. CLINICAL AND EXPERIMENTAL INVESTIGATIONS. T. Ockerse. Pretoria, So. Africa. Department of Health. 80 pp.

EDUCATION FOR SAFE LIVING. (2nd ed.) Herbert J. Stack, Elmer B. Siebrecht and J. Duke Elkow. New York: Prentice-Hall, 1949. 447 pp. Price, $3.75.

FOR THE NEW MOTHER. Mildred V. Hardcastle. Philadelphia: John C. Winston, 1949. 163 pp. Price, $2.00.

HEARING TESTS AND HEARING INSTRUMENTS. Leland A. Watson and Thomas Tolan. Baltimore: Williams & Wilkins, 1949. 597 pp. Price, $7.00.

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON LABOR AND PUBLIC WELFARE UNITED STATES SENATE. 81st Congress. National Health Program, 1949. Washington: Gov. Ptg. Office, 1949. Part I and Part II, 1247 pp.

HYGIENE AND PUBLIC HEALTH. Earl B. Erskine. New York: Prentice-Hall, 1949. 322 pp. Price, $3.75.

MALARIA, THE BIOGRAPHY OF A KILLER. Leon J. Warshaw. New York: Rinehart, 1949. 348 pp. Price, $3.75.

NUTRITION. (4th ed.) Margaret S. Chaney and Margaret Ahlborn. Boston: Houghton Mifflin, 1949. Price, $3.90.

NUTRITION SURVEYS: THEIR TECHNIQUES AND VALUES. Washington: National Research Council, National Academy of Sciences, 1949. 144 pp. Price, $1.50.

RED CROSS NURSE IN ACTION 1882–1948. Portia B. Kernodle. New York: Harper, 1949. 506 pp. Price, $5.00.

STEDMAN'S MEDICAL DICTIONARY. (17th ed.) Edited by Norman Burke Taylor and Allen Ellsworth Taylor. Baltimore: Williams & Wilkins, 1949. 1361 pp. Price, $8.50.

SURVEY OF BIOLOGICAL PROGRESS. Vol. I. Edited by George S. Avery, Jr. New York: Academic Press, 1949. 396 pp. Price, $6.80.

TROPICAL DISEASES, AN EPITOME OF THE LABORATORY DIAGNOSIS AND TREATMENT OF. (2nd ed.) Horace M. Shelley. New York: Staples, 1949. Price, $2.25.

VITAMINS IN MEDICAL PRACTICE, THE. J. Shafar. New York: Staples, 1949. 383 pp. Price, $4.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

This Will Surprise You—". . . the hazard of death by accident has been greatly reduced. In the years 1946–1948, accidental deaths . . . at ages 1 to 74 years occurred at the rate of 43.4 per 100,000, or only a little over half the incidence of the period 1911–1915. . . ." There is still room for improvement.

ANON. Progress in Safety. *Stat. Bull.* (Met. Life Ins. Co.) 30, 9:1 (Sept.), 1949.

Quote—Dental health education no longer can be limited to the statement "see your dentist every six months." There are effective, economical ways to prevent and control dental disease. Only a well informed public can make the best use of them. Unquote.

BROWN, H. K. The Present Status of Dental Preventive Measures. *Canad. Pub. Health J.* 40, 9:382 (Sept.), 1949.

Science by Pronouncement—This item is as wide of the field of public health as any that has wandered into our fickle guide for the tractable. Here is the last sentence: "But for the grace of all who have fought for the freedom of the human mind, each of us stood in Moscow on August 7 last, and heard the words of doom: 'The Central Committee of the Party examined my report and approved it.'"

COOK, R. C. Lysenko's Marxist Genetics. *J. Hered.* 40, 7:169 (July), 1949.

Wholesale Health—How we love to roll new and high-sounding words over our tongues! Now it's "multiphasic" that is destined to become as overworked as "level" and "positive health." A multiphasic screening program will appeal to patient, health worker, and taxpayer. It will foster teamwork, reduce costs in money and misery. Few communities are so resourceless that they could not support a program once they appreciate its advantages. These are only a few of the pros.

CHAPMAN, A. L. The Concept of Multiphasic Screening. *Pub. Health Rep.* 64, 42: 1311 (Oct. 21), 1949.

Not To Be Missed—This is a badly needed paper but with—for me—not the happiest of titles, because I cannot restrain myself from adding, "and everybody's business is nobody's." People can be inveigled into taking a hand in community health promotion, the writer insists. Techniques for behind-the-scenes string-pulling, he sets forth in instructive detail.

DERRYBERRY, M. Health Is Everybody's Business. *Pub. Health Rep.* 64, 41:1293 (Oct. 14), 1949.

Pointed Remarks on Polio—If you could do with a little chastening, and chances are good you could, then read this paper which begins with critical comment on freehand researching and conclusion-jumping. Though the paper is concerned with polio, you may be able to read into it some warnings against easy assumptions in your own field. It is long and calls for concentration, but the results should be salutary.

HAMMON, W. McD. Immunity in Poliomyelitis. *Bact. Rev.* 13, 3:135 (Sept.), 1949.

On the Whole, Good—A pediatrician, practising outside London, gives a sympathetic picture of the first year's experience with the British National Health Service. Mostly we've heard from the G. P.'s. If you are interested in forming a rounded picture of the "biggest operation ever known in

medicine," you will want to add this item to your collection.

ILLINGWORTH, R. S. First Year of the British National Health Service. *Pediatrics* 4, 4:516 (Oct.), 1949.

Normal Phenomenon?—Like the music in the horn, pediatric ideas seem to go round and round. In this study of thumb-sucking it is recorded that babies who enjoyed that hideously insanitary, never-to-be-condoned, dummy teat did not become thumb-suckers. Sucking satiety is not the only factor in prevention but it is certainly one.

KLACKENBERG, G. Thumbsucking; Frequency and Etiology. *Pediatrics* 4, 4:418 (Oct.), 1949.

It Helps, But—It's asking the tail to wag the dog, he insists. Artificial vaccination (with BCG) probably does not produce results superior to natural vaccination, yet natural vaccination fails to control tuberculosis. It seems illogical to base a major attack against a disease on a skirmish against a minor phase of it. His advice is to stick to the big problem—unrecognized TB.

MEDLAR, E. M. Prophylactic (BCG) Vaccination to Control Tuberculosis. *J.A.M.A.* 141, 9:593 (Oct. 29), 1949.

Progress Report—Three universities are offering advanced courses in mental hygiene for public health nurses. The first graduates are at work as consultants in official and voluntary agencies.

PEASE, S. H. Public Health Nursing and Mental Hygiene. *Pub. Health Nurs.* 41, 10: 521 (Oct.), 1949.

Survey Pitfalls—Life is hard for the researcher in the field. He can gauge the people's health by diet surveys or by blood sampling, but he'll find precious little relationship between reported diet and blood values. Wide differences are found in the correlation between nutrient intake and plasma content. The mathematical procedures used to reach this discouraging conclusion were way over my head but they look convincing.

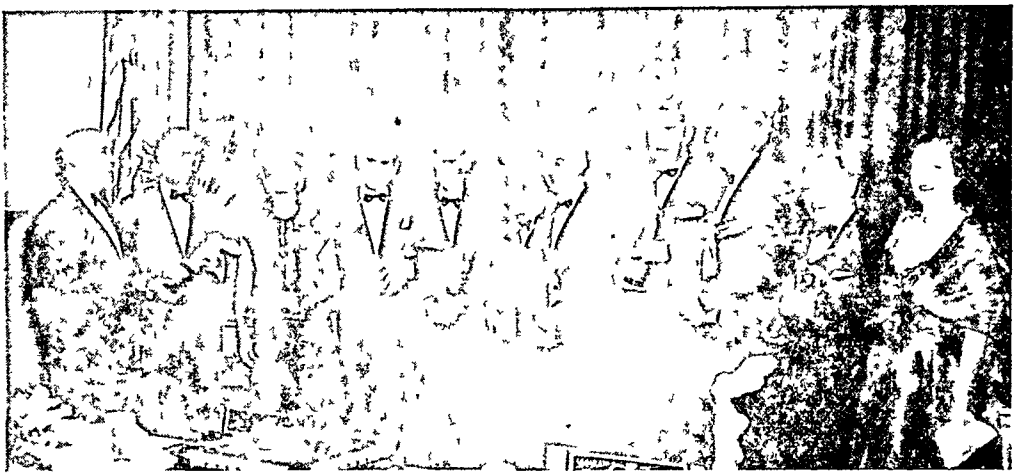
PUTNAM, P., *et al.* The Statistical Association Between the Diet Record and Ascorbic Acid Intake and the Blood Content of the Vitamin in Surveyed Populations. *Milbank Mem. Fund Quart.* 27, 4:355 (Oct.), 1949.

Getting Rid of Rats—Successful rat control programs are those that never stop. The toughest job is convincing the public that rat-infestation is a serious menace to health. A questionnaire was sent and this is to be the overall picture of what is being done. Part II will follow.

SNYDER, C. W. A Survey of Urban Rat Control in the U. S. A. *Modern San.* 1, 6:14 (Oct.), 1949.

NRC Committee Report—As brucellosis in human beings comes solely from infected domestic animals, public health has a stake in the difficult veterinary problem of control. Only the destruction of infected animals will do the job, and thus far that hasn't been practical. Aureomycin might do the trick but at present-day prices the cost is prohibitive.

SPINK, W. W., *et al.* Control and Eradication of Brucellosis in Animals. *J.A.M.A.* 141, 5:326 (Oct. 1), 1949.



Left to right Dr George Baehr, Mr M Albert Linton, Marion W Sheahan, R N; Dr Andre Cournand; Dr L R Christensen, Dr Max Theiler; Dr Edward C Kendall; Dr Philip Hench; Dr Haven Emerson, Dr William S Tillett, and Mrs Albert D Lasker

THE LASKER AWARDS FOR 1949

The American Public Health Association for the fourth year, through the presentation of the Albert and Mary Lasker Foundation Awards, acknowledges outstanding contributions to scientific research related to diseases which are the most frequent causes of death and disability, and for distinguished services in the field of public health. The Awards both honor the recipients by dramatizing their accomplishments and seek to stimulate public and professional interest in any such work designed to provide a more healthful and happier lifespan for man.

The Lasker Awards for 1949 were conferred on October 25, 1949, at the First General Session of the 77th Annual Meeting in New York, N. Y. Eight individuals and two groups were honored:

DR HAVEN EMERSON of the American Public Health Association and The National Health Council—a *Special* Lasker Award—"for extraordinary achievement in developing a program for complete local health service in every area of the U S"

DR ANDRE COURNAND of Columbia University "for outstanding contributions to the physiology of the circulation in man and the diagnosis and treatment of heart disease"

MARION W SHEAHAN, R N, of the National Committee for the Improvement of Nursing Services "for distinguished leadership in the fields of nursing and public health"

DR MAX THEILER of The Rockefeller Foundation "for distinguished experimental work leading directly to the production of two effective vaccines against yellow fever"

DR. WILLIAM S TILLETT AND DR L R CHRISTENSEN of New York University jointly, "for discovery and purification of streptokinase and streptodornase and demonstration of their effectiveness in treatment of certain human diseases"

DRS. EDWARD C. KENDALL AND PHILIP S HENCH of the Mayo Clinic, jointly, "for their studies of adrenal hormones which culminated recently in the dramatic therapeutic effect of Cortisone in rheumatic disorders"

THE LASKER GROUP AWARD FOR 1949 HONORS

THE AMERICAN ACADEMY OF PEDIATRICS, DR WARREN R. SISSON, President, "in recognition of the public health significance of its notable nation-wide study on child health services and pediatric education"

THE LIFE INSURANCE MEDICAL RESEARCH FUND, M. ALBERT LINTON, Chairman, "for initiation and support of programs of research into the main cause of death, cardiovascular disease"

The beautifully illuminated citations read as follows:

DR. HAVEN EMERSON

Most recipients of high honors must accumulate the services of a lifetime in order to earn their reward. In Haven Emerson, however, we deal with a figure so unique that one episode alone out of a life of exceptionally distinguished service suffices to justify our appreciation.

During the last decade Dr. Emerson has demonstrated the power of an idea whose time has come. Although local health service under municipal government goes back at least 75 years, and though more than 40 years have passed since the founding of the first full-time rural health unit in the United States, there remains about one-third of our population and even larger part of our land area without even the rudiments of an organized health service.

Since 1942 Dr. Emerson in almost single-handed devotion has undertaken the task of solving this problem by overcoming public and professional complaisance with the status quo and thereby extending sound governmental programs for health to every part of the United States.

Studies directed by Dr. Emerson for the Committee on Administrative Practice have put on record for the first time the minimum basic services and the principles which should prevail in every community. The acceptance this report has received from organized medicine, from the various professions concerned, from voluntary health agencies and from Federal Government has been unprecedented.

A standard reference work, *Local Health Units for the Nation,* published in 1945, has become the pattern for public health planning in nearly every state. The influence and prestige of this movement are the more notable because the report has never had official status, yet cannot be ignored by any responsible health administrator today. The sheer perfection of the plan for the ends desired is the basis of its popularity and usefulness.

The record shows that Dr. Emerson, with the backing of the American Public Health Association and of the National Health Council, has planned notable conferences held for state health authorities at the University of Michigan and for national civic groups at Princeton which, in turn, led to the creation of a committee representing fifty national civic agencies which has brought overwhelming influence to bear. A series of conferences has been held, each representing several states, to broaden the base of citizen understanding and to facilitate the permissive legislation required.

To have made such an impress upon a public matter touching so intimately the health and well-being of every citizen would be a worthy achievement for any man's lifetime. Yet Dr. Emerson has undertaken this crusade and brought it far on the road to completion as one chapter in a long and distinguished life, full of honors and of achievement.

The Special Award is presented to Dr. Emerson in recognition of this part of his inspiring career because it promises to influence favorably the health and the lives of all Americans, and to provide the framework not only for the special services now recognized as essential to our civic health, but also for extensions into other fields which may open before us in the future.

DR. ANDRE COURNAND

To Andre Cournand a Lasker Award for 1949 is made for his original, constructive, and comprehensive research in the field of human pulmonary physiology, extending over a period of nearly twenty years; for his courageous application of the technique of catheterization of the heart to the study of cardiovascular blood pressures and blood flow; for his investigation, by these techniques, of the dynamics of circulatory failure in traumatic shock in man, and the effects of treatment in this condition; for his brilliant and profoundly significant contributions to the physiology of the pulmonary circulation, and of the dynamics of the heart in both normal and abnormal conditions, with clarification of the aims and effects of treatment; and finally, for the inspiration of his leadership as a scientist, counsellor, and teacher, to the rising generation of men and women engaged in research in the broad field of cardiovascular physiology and cardiovascular disease.

DR. WILLIAM S. TILLETT AND DR. L. R. CHRISTENSEN

In the course of certain diseases or following injury, an accumulation of pus or fibrin clots frequently occurs which may seriously delay or prevent healing. Up to the present, the treatment of such conditions has been by surgical evacuation, which often included major plastic operations for repair. Through the distinguished collaborative investigations of Dr. William S. Tillett and Dr. L. R. Christensen at New York University College of Medicine, "streptococcal enzymatic debridement" has been discovered and developed as a new therapeutic principle of important clinical sig-

nificance. In addition, our knowledge of the nature of a protein-digesting enzyme of human blood has been placed on a new basis and information gained on the composition of pus which changes previous concepts.

Dr. Tillett, an original and profound student of both the clinical and laboratory aspects of infectious disease, discovered in 1933 that hemolytic streptococci produce an enzyme, fibrinolysin, now known as streptokinase, a substance which dissolves human fibrin clots. Twelve years later, Dr. Christensen, a microbiologist, with a strong biochemical bent, demonstrated, after a characteristically penetrating and persistent investigation, that streptokinase functions by activation of another protein-digesting enzyme present in blood plasma, but usually in an inactive state. He also described a method of purifying streptokinase which permitted its successful use in patients.

In the course of clinical studies on the liquefaction of fibrinous and purulent exudates, it was recognized for the first time that the viscous character of pus is due in great part to desoxyribose nucleoprotein; moreover, it was found that the streptokinase preparations contained an enzyme, streptococcal desoxyribonuclease (streptodornase) which, through its digestive action on nucleoprotein, causes thick pus to become thin and watery and thereby facilitates its removal. Methods for purifying this enzyme have also been developed by these investigators.

This demonstration of the mode of action and clinical effectiveness of streptokinase and streptodornase is a brilliant contribution to the treatment of human diseases in which accumulated fibrin or pus impedes healing or delays it indefinitely. It is not an exaggeration to state that the principles involved in the clinical use of these streptococcal products stand out as a therapeutic landmark. In recognition of these important contributions to the advancement of medicine, the American Public Health Association presents a Lasker Award for 1949 jointly to Dr. William S. Tillett and Dr. L. R. Christensen.

MARION W. SHEAHAN, R.N.

The American Public Health Association pays tribute to a rare blend of talents in the person of Miss Marion W. Sheahan. Nursing service, the field of public health, and particularly public health nursing, have assumed a new and broader stature because of Miss Sheahan's inspiring leadership, skills and unswerving devotion to her "visions of a better world."

Her creative thinking helped to mold the plans which enabled nursing to play its proper role throughout World War II in health protection on the home front and mobilization of nursing personnel for the Armed Services.

Miss Sheahan was chairman of the National Nursing Planning Committee which formulated A Comprehensive Program for Nation-wide Action in the Field of Nursing. This became the blueprint which initiated and will guide progress in nursing for many years to come.

As Director of Public Health Nursing in New York State, she pioneered new methods that set the patterns for her own and many other States.

With ability and courage to reach difficult goals, Miss Sheahan has forged a record of superb achievement by her accomplishments.

DR. MAX THEILER

Dr. Max Theiler discovered in 1930 that white mice are susceptible to yellow fever virus inoculated intra-cerebrally and that serial intra-cerebral passage of the virus in this host produces a loss of virulence for monkeys.

This observation revealed for the first time the possibility of protecting exposed human beings against attacks of this dread disease. It led almost at once to a method of human vaccination against yellow fever which is still extensively used. Further work by Dr. Theiler, in 1936 and 1937, resulted in the production of a more profound modification of the virus by means of prolonged maintenance in tissue cultures. This strain of virus, known as 17D, has been made the basis of another effective vaccine utilized for the protection of millions of human beings against yellow fever in various parts of the world. Men and women in African and South American Jungles would be grateful to Dr. Theiler if they realized their debt to him.

The American Public Health Association belatedly recognizes this debt with deep appreciation by a Lasker Award to Dr. Theiler for these outstanding scientific contributions to human health and welfare.

DR. EDWARD C. KENDALL AND DR. PHILIP HENCH

After isolating thyroxine from the thyroid gland in 1914 and glutathione from yeast in 1939, Dr. Kendall turned his attention to the chemistry of the hormones of the adrenal glands. Since 1932, Dr. Kendall has achieved a rare measure of success in the isolation of active steroids from the adrenal cortex, including Compounds A, E, and F. The chemical isolation of these substances made it possible for Dr. Kendall and his collaborators, as well as investigators throughout the world, to study their physiological action. Dr. Kendall's

chemical studies have also aided immeasurably in the recent large-scale synthesis of Compounds A and E.

Dr. Philip Hench, a physician with a long and deep interest in rheumatic disorders, had on clinical grounds come to believe that an inadequate supply of certain adrenal steroids might constitute a fundamental disturbance in rheumatoid arthritis and allied disorders. In closest association with Dr. Kendall, Dr. Hench systematically tested the effects of various adrenal hormones as they became available for clinical trial. These studies culminated in the demonstration of the almost miraculous therapeutic effect of Compound E, now termed Cortisone, in the management of rheumatic disorders.

For these valuable contributions to human biology and the therapy of one of the commonest diseases of mankind, the American Public Health Association presents a Lasker Award for outstanding scientific achievement to these distinguished investigators.

THE LIFE INSURANCE MEDICAL RESEARCH FUND, M. ALBERT LINTON, CHAIRMAN

The Life Insurance Medical Research Fund was established in 1945 by the cooperative participation of most of the important life insurance companies of the United States and Canada for the purpose of making grants in support of medical research, the results of which might be expected to reduce mortality and improve longevity. Under the able chairmanship of M. Albert Linton, the Fund initiated a program of aiding research on cardiovascular disease at a time when financial support for research in this field was very limited.

From its inception the Fund, in recognition of the well-established principle that research in the basic medical sciences often and sometimes unexpectedly provides the knowledge essential for the development of methods for the prevention or cure of disease, wisely adopted the policy of placing major emphasis on support of fundamental research.

It is already apparent that the activities of the Fund not only have served to focus attention on the need for cardiovascular research but also through its grants and fellowship program have given a great impetus to research in both the experimental and clinical fields.

Of perhaps even greater importance than its direct financial contributions to the solution of problems of cardiovascular disease, the Fund has set a pattern for the cooperative support of medical research by private agencies which possess fundamental social significance for the public health and may well serve as an example for the establishment of similar undertakings by other private and quasi-public agencies. In recognition of these constructive contributions to the advancement of medical science and public health, the American Public Health Association presents a group award for 1949 to the Life Insurance Medical Research Fund for outstanding public service.

THE AMERICAN ACADEMY OF PEDIATRICS, DR. WARREN SISSON, PRESIDENT

The American Academy of Pediatrics has concerned itself for more than eighteen years with securing better and more evenly distributed health services for the children of this country.

In line with its purpose to make medical care of high quality available to all mothers and children, regardless of race, creed, or economic circumstances, this distinguished national body of pediatricians initiated a comprehensive nation-wide study of child health services and of pediatric education in 1945 with the active participation and support of the United States Children's Bureau and the Public Health Service.

The study covered every state and county in the Nation during the course of three years. Its detailed findings, recently published by the Commonwealth Fund under the title, "Child Health Services and Pediatric Education," clearly reveal the inadequacies of professional personnel and facilities peculiar to each state, which are dependent upon the nature of its population, its geography, and its economic status. These revelations also point the way to methods for early correction of the deficiencies, if the people of our country and the legislators can be made to realize their full significance.

In appreciation of this outstanding service to the mothers and children of our country, the American Public Health Association has selected the American Academy of Pediatrics as the recipient of its 1949 Lasker Group Award for meritorious achievement in the field of public health.

The Association is particularly gratified that an Award this year goes to a national medical society composed of physicians engaged in clinical pediatrics and in pediatric education and research.

By its great accomplishment, the American Academy of Pediatrics has emphasized the dedication of the pediatricians of this country to unselfish public service. At the same time it has demonstrated that a national medical society motivated by these ideals can work in close association with our federal agencies in a spirit of mutual confidence and helpful collaboration.

ASSOCIATION NEWS

OFFICERS, 1949–1950

President—Lowell J Reed, Ph D, Baltimore Md
President-Elect—William P Shepard, M D, San Francisco, Calif
Vice-Presidents—
Marcolino G Candau, M D, Rio de Janeiro, Brazil
Mary P Connolly, M S, Ann Arbor, Mich
Adelard Groulx, M D, Montreal, Quebec
Treasurer—Herman E Hilleboe, M D, Albany N Y
Executive Secretary—Reginald M Atwater M D New York N Y
Chairman of Executive Board—Hugh R Leavell, M D Boston, Mass
New Members of Executive Board—
Hugh R. Leavell, M D, Boston, Mass
Charles G King, Ph D, New York, N Y

Lowell J. Reed, Ph D., President of the American Public Health Association

Lowell J. Reed, Ph.D., of Baltimore, Md., Vice-President of Johns Hopkins University and Hospital, assumed the Presidency of the Association at the close of the 77th Annual Meeting in New York City on October 28, having served as President-Elect since 1948

Dr Reed, who is a native of New Hampshire, was graduated from the University of Maine in 1907, and received a Master of Science degree from the same institution in 1912 and the Ph.D. degree from the University of Pennsylvania in 1915.

Dr. Reed's academic positions have been continuous since 1907, with instructorships at the University of Maine, the University of Pennsylvania, and a period of service as Assistant Professor at the University of Maine. During World War I he served as Director of the Bureau of Tabulation and Statistics for the War Trade Board.

With the establishment of the School of Hygiene and Public Health at Johns Hopkins University, Baltimore, Dr. Reed in 1918 became Associate Professor of Biometry and Vital Statistics, which post he continued until 1925. In that year he was made Professor and he has served as Dean and Director of the School, 1937–1946, and as Vice-President of the University in charge of medical affairs during the most recent



Lowell J Reed, Ph D

three year period. His new position as Vice-President of the Johns Hopkins University and Hospital was only recently announced in connection with a reorganization of the medical units at the Hopkins.

Dr. Reed joined the American Public Health Association in 1925 and was elected a Fellow of the Vital Statistics Section in 1928. He has been actively identified with the American Statistical Association, the American Association for the Advancement of Science, the American Mathematics Society, the Mathematics Association of America, the International Union for Scientific Investigation of Population Problems, and the Population Association of America. Dr. Reed is an Associate Fellow of the American Medical Association For many years he has served as a member of the Technical Board of the Milbank Memorial Fund, New York, and of the Board of Scientific Directors of the Rockefeller Foundation, New York. He is a member of Phi Beta Kappa, Sigma Xi, Delta Omega, and Phi Kappa Sigma.

In addition to his work as a teacher. Dr Reed has made many contributions to scientific literature and is particularly well known as consultant on medical and public health education. He recently served as a special Congressional referee in connection with the development of a bill for federal aid to medical, public health, engineering, dental, and nursing education.

SEDGWICK MEMORIAL MEDAL TO DR. VAUGHAN FOR 1949

THE Sedgwick Memorial Medal was presented on behalf of the Association on October 27, 1949, by Abel Wolman, Dr.Eng., of Johns Hopkins University, Baltimore, Chairman of the Sedgwick Memorial Committee, to Henry F. Vaughan, Dr.P.H. In his presentation. Dr. Wolman gave the following citation:

"The American Public Health Association delights to honor Dr. Henry F. Vaughan with the bestowal of the Sedgwick Memorial Medal for distinguished service in public health.

"This award to Dr. Vaughan represents the nineteenth time this Medal has been presented since 1929. The names of those honored in the last two decades reflect the variety of achievement which has been recognized as meriting such high distinction in public health. There have been public administrators like Chapin, Haven Emerson, and Thomas Parran; research scientists like Theobald Smith, George W. McCoy, William H. Park, Milton J. Rosenau, Hans Zinsser, and Karl F Meyer. There have been great teachers like Frost and Winslow, and distinguished servants of the common good in related fields.

"Henry Vaughan's record is a constellation of brilliant achievements. Best known to an earlier generation as the Health Officer of Detroit for almost twenty-five years, Dr. Vaughan built



HENRY F. VAUGHAN, DR P H

there a Department of Health of world-wide fame, noted for its aggressive and imaginative approach to the really important aspects of health, as well as for the teamwork of his specially able staff associates. His record in Detroit was marked in particular by his productive relationships with physicians. Here a pattern was set which has influenced scores of other health departments across the land and overseas.

"Since 1941 Dr. Vaughan has been Dean of the School of Public Health at the University of Michigan. In this capacity his creative talents have continued to assert themselves. He has assembled an excellent faculty and has offered a course closely related to the practical aspects of modern public health. Beyond the classroom work Dr. Vaughan has developed a unique series of institutes to which have come hundreds of practising health workers for truly refreshing experience. The organization of these conferences has utilized the best features of group dynamic technics and has set standards for graduate education that place Michigan among the forefront of universities linked with practical programs.

"Dr. Vaughan, who was never a man to be fenced in with accepted conventions, has organized the National Sanitation Foundation which represents cooperation between a university and the leading industries concerned with products on which the maintenance of the public health depends. He has been a leading influence in the developing program of the W. K. Kellogg Foundation. His service to Detroit has been rounded out with sustained help to the State of Michigan as a member of the Public Health Council.

"The American Public Health Association has had an opportunity at first hand to enjoy the statesmanlike leadership of Dr. Vaughan, and in making this award there is a sense of special pride in this public recognition of his achievements long known to the officers and boards of this professional society.

"Dr. Vaughan became a member of the American Public Health Association in 1914 and was elected a Charter Fellow in 1922. He became a Life Member in 1929. He was Vice-President of the Association in 1923 and President in 1925. He has served six terms as an Elective Member of the Governing Council, beginning in 1916. He has been a member of the Executive Board of the Association during nine years. He was Editor of the *American Journal of Public Health,* 1922–1924. He served as Vice-Chairman of the Health Officers Section in 1921 and for nine years was a member of the Council of the Section and for two years Chairman of the Association Committee on Fellowship and Membership. He was for nine years Chairman of the Committee on Constitution and By-Laws. For many years since 1924 he has been a member of the Committee on Administrative Practice, of which he served as Chairman in 1942 and 1943. He is now a Consultant of the Committee.

"In many respects Dr. Vaughan's career has represented the flowering of an idea which guided William T. Sedgwick in training young men to be health administrators. Sedgwick believed that sound grounding in the pre-clinical sciences was essential, but that the possession of an M.D. degree was not obligatory for health officers. For almost twenty-five years in Detroit Dr. Vaughan demonstrated how well a department might be operated with competent medically trained persons in various bureau positions under a commissioner of health whose background was engineering and sanitation.

"Dr. Vaughan is a native of Ann Arbor where he now lives, the son of Dr. Victor C. Vaughan and Dora Taylor Vaughan. He received his baccalaureate degree from the University of Michigan in 1912, followed by a Master of Science

in 1913 and the Doctorate in Public Health in 1916. Dr. Vaughan practised sanitary engineering and public health, 1913–1917 and was an Associate Professor of Public Health at Wayne University, Detroit, 1915–1937, following which he was Professor, 1937–1941. He was Commissioner of Health of the City of Detroit, 1918–1941 and has been identified with public health teaching at the University of Michigan since 1922. Since 1941 he has been Professor of Public Health and Dean of the School of Public Health at Ann Arbor.

"Dr. Vaughan, the American Public Health Association honors itself in awarding to you this Medal commemorating the services of William Thompson Sedgwick as a symbol of our recognition of your own distinguished achievement in public health."

Dr. Vaughan, in accepting the Award, made the following response:

"In accepting this priceless award I am not unmindful of the great honor which has been conferred upon me, and through this means upon my associates of the past many years. I feel extremely humble in accepting even momentarily the enduring symbol which keeps alive the spirit of William T. Sedgwick. This beloved teacher, recognized for such distinctive contributions to the progress of human biology and the training of men of science, possessed unusual power for discerning professional relationships. We are only now gradually cementing the various disciplines of the health specialties into a modern pattern and basic structure which represents the fulfillment of his ideals so aptly expressed nearly half a century ago.

"Professor Sedgwick joined our Association in 1902 and, at the Annual Meeting held at New Orleans that same year, as Chairman of the Committee on the Teaching of Hygiene, he emphasized the need of including as members of the health department staff full-time physicians trained and steeped in the science and experience of public health practice, and he also stressed the part that the bacteriologist and sanitary engineer should play in performing necessary investigations into the field of environmental health, serving as advisers and coworkers to the medical officer.

"Three years later at our thirty-third annual meeting held in Boston, in discussing the readjustment of education and research in hygiene and sanitation, he emphasized as a fundamental need the establishment of permanent, well paid positions in the health services. He declared as his belief that we should never cease for an instant to proclaim the necessity for well trained career personnel to man the health agencies. Then, typifying his staunch belief that public health would succeed only in the hands of men and women unshackled from the heritage of political tradition and domination, he prophesied the currently accepted practices in preparing individuals in sanitary biology, sanitation, epidemiology, and public health statistics and then qualified these suggestions with the statement that the health director must be a man who possesses tact, courage, and firmness.

"Thus today on the eve of noteworthy expansion in our training programs with the aid of our federal, state, and local health departments in providing funds for personnel training and encouragement for young men and women about to enter public health career work, we begin to see a realization of the prophetic delineation so forcibly outlined by Sedgwick many years ago. And again with the fulfillment of a plan to extend and strengthen effectively local health services throughout America, we are about to witness the accomplishment of proposals made by this beloved educator and public health statesman in 1905.

"And so we pause each year in the midst of our scientific and educational

conferences at the Annual Meeting of the American Public Health Association to pay honor to William T. Sedgwick as a man of far-reaching discernment and to take stock among ourselves as to the progress we are making in the fulfillment of the ideology of one who labored efficiently and effectively in promoting and conserving human health and welfare. The human race will always be the richer for his power of visualizing the health problems of his day and of the future. Untold millions will benefit by his contributions and those of his disciples to the progress of education and to the establishment and maintenance of adequate full-time community health services."

ACTIVITIES OF THE VOCATIONAL COUNSELING AND PLACEMENT SERVICE

The Association's Vocational Counseling and Placement Service, under the direction of Dr. F. W. Racker, again operated a booth among the scientific exhibits at the A.P.H.A. Annual Meeting in New York City. As in previous years there was considerable interest in the services offered on the part of employers, candidates, and of newcomers who wished to obtain information on public health careers. The Nurse Counseling and Placement Office of the New York State Employment Service occupied the adjoining booth. This was an expedient arrangement since the Vocational Counseling and Placement Service does not undertake to register nurses, believing that this function is best handled by specialized agencies such as the Nurse Counseling and Placement Office.

At the 76th Annual meeting in Boston, 75 employers and 33 candidates for positions were interviewed (excluding nurses). In the same occupational groups the ratio of employers to candidates was practically reversed this year with 37 employers and 69 candidates interviewed. The increase in candidates was most striking in the health education, sanitarian, and laboratory groups.

Year-to-year changes in the register of the Vocational Counseling and Placement Service permit some conclusions on the changing supply and demand in the various occupational groups. In September, 1949, a letter was sent to all employers on the active register inquiring which of the openings registered during the past year, and not reported as filled, still remained open. A crude analysis of the replies revealed the following interesting results: only 18 per cent of the medical openings had been filled as against 51 per cent of the engineering, 42 per cent of the sanitarian, 57 per cent of the laboratory and 60 per cent of the health education openings. These figures indicate that the personnel shortage is most striking in the medical group of positions, openings in the other job categories being filled with less difficulty (not taking into account the nursing group). Recent discussions with a number of public health employers confirmed the impression that it has become easier than in the past few years to fill the lower grades of laboratory, engineering, and sanitarian openings but that it is still very difficult to find suitable candidates for medical openings and for some of the higher grades of openings in other professional groups.

The candidates on the register also had received follow-up letters prior to the Annual Meeting. Their replies revealed that only 10 per cent are unemployed while the remaining 90 per cent are currently employed but are interested in better opportunities. The ratio of openings to candidates on the register over the past four years has been rather consistently 4:1 (10 to 1 for the medical group).

These findings clearly point to the need for active recruitment of new workers into the public health field, especially to those professional groups in which the greatest shortage of trained personnel exists.

NEW PROJECTS, OFFICERS AND STAFF FOR THE COMMITTEE ON CHILD HEALTH

The Association Committee on Child Health was established in 1947 while Dr. Martha Eliot was President of the Association (see *A.J.P.H.*, Feb., 1948, p. 295). Dr. Leona Baumgartner, the Committee's first Chairman, resigned last summer when she was appointed Associate Chief of the Children's Bureau. Dr. Samuel M Wishik, Director, Bureau of Child Health, New York City Department of Health, succeeded Dr. Baumgartner as chairman of the committee. Dr. Franziska W. Racker of the Association staff has immediate administrative responsibility for the activities of the committee in the central office in close coöperation with the chairman and under the direction of the Executive Secretary.

One of the contributions which this committee has already been able to make has been the establishment of a successful liaison on problems of mutual concern with the Committee for the Improvement of Child Health of the American Academy of Pediatrics (see *A.J.P.H.*, Aug. 1949, p. 1078). One area of particular interest to both groups is the training of physicians in well child supervision.

The committee's major project and interest at the present time is to collect, review, and classify standards and recommended practices in public health programs in the field of child health, and to make these "codified standards" available to workers in the field.

With the financial aid of the New York Fund for Children, staff time for administrative and research activities has been made available for this project. On September 1, 1949, Dr. Barbara M. Korsch was appointed Research Associate of the Committee on Child Health. Dr. Korsch is a pediatrician who is at present dividing her time between the Committee on Child Health and the New York City Department of Health. She received her medical degree at Johns Hopkins Medical School in 1944, served a rotating internship and assistant residencies in pediatrics and medicine in New York City and Cooperstown, N. Y. She is particularly well trained in the field of growth and development and emotional problems of children, having been a Public Health Service Research Fellow at the Institute of Child Development of New York Hospital and a Pediatric Consultant at the Menninger Clinic at Topeka Kan.



BARBARA M. KORSCH, M D

JOURNALS WANTED

The Association will appreciate it if members who can spare copies of the March, April, June, and October, 1949, issues of the *Journal*, will send them collect, addressed as follows: Circulation Department, American Public Health Association, 1790 Broadway, New York 19.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

John T. Gentry, M.D., 412 Rogers Bldg., Glen Falls, N. Y., Apprentice Epidemiologist, New York State Dept. of Health

Eleanor B. Gutman, M.D., Coos County Health Dept., Coquille, Ore., County Health Officer

Lt. Col. John R. Hall, Jr., M.C., Armed Forces Staff College, Norfolk 11, Va., Medical Officer, United States Army

Comdr. Matthew J. Hantover, M.C., U. S. Naval Air Station, c/o BOQ, Alameda, Calif., United States Navy, Commander

Jacob Hurowitz, M.D., 100 Post Ave., New York 34, N. Y., Physician-in-charge, Washington Heights Social Hygiene Clinic, New York City Dept. of Health

Henry W. Kassel, M.D., Window Rock, Ariz., Chief Medical Officer, Navajo Service, P.H.S., F.S.A.

William J. Kennard, M.D., 1312 24th St., South, Arlington, Va., Chief, Aviation Medical Division, Office of the Surgeon General, U. S. Air Force

Pao-Zan King, M.D., M.P.H., 405 E. 42nd St., New York 17, N. Y., Medical Advisor, United Nations International Children's Emergency Fund

Alphege Landreville, Health Dept., New Bedford, Mass., Agent

George R. Landy, M.D., Sanilac County Dept. of Health, Sandusky, Mich., Medical Director

William A. Loori, M.D., 549 Pavonia Ave., Jersey City, N. J., Attending Physician, St. Joseph's School for the Blind

Harold J. Magnuson, M.D., M.P.H., Box 687, Chapel Hill, N. C., Senior Surgeon, Syphilis Experimental Laboratory, F.S.A., P.H.S.

I. J. Markel, M.D., 215 W. Franklin St., Elkhart, Ind., Health Commissioner, City of Elkhart

Thelma S. Miner, M.D., D.P.H., Provincial Health Dept., Assiniboia, Sask., Canada, Regional Medical Health Officer

G. Wayne Powell, M.D., 2334 Bancroft Way, Berkeley 4, Calif., Student, School of Public Health, Univ. of California

Philip C. Risser, M.D., Olympic Health Dist., Port Angeles, Wash., District Health Officer

James H. Stewart, M.D., Polk County Health Dept., Dallas, Ore., County Health Officer

Laboratory Section

Richard C. Arnold, M.D., U. S. Marine Hospital, V. D. Research, Laboratory, Staten Island 4, N. Y., Director

Betty A. Bachman, M.A., Burton Hall, Smith College, Northampton, Mass., Instructor in Bacteriology

Dorothy L. Chandler, B.A., 2317 LeConte 3, Berkeley 9, Calif., Assoc., School of Public Health, Laboratory, Univ. of California

Mildred L. Coombs, M.S., Simmons College, Boston 15, Mass., Instructor, Dept. of Biology

Robert H. Green, M.D., 789 Howard Ave., New Haven, Conn., Asst. Professor of Medicine, Yale Univ., School of Med.

William A. Hinton, M.D., 281 South St., Jamaica Plain, Mass., Clinical Professor of Bacteriology and Immunology, Harvard Medical School

John G. Kidd, M.D., 1300 York Ave., New York 21, N. Y., Professor of Pathology, Cornell University Medical College

Helen MacLean, 212 S. Ashland Blvd., Chicago 7, Ill., Bacteriologist, Michael Reese Hospital

Sister Mary Zdzislawa Mincinska, Mother Frances Hospital, Tyler, Tex., Medical Technologist (General Laboratory)

Jean Naylor, A.B., 715 40th St., Oakland 9, Calif., Assoc. in the School of Public Health, Univ. of California

Martha K. Ward, D.Sc., 5037 Blair Circle, Chamblee, Ga., Bacteriologist - in - charge, Special Bacteriology Unit, Communicable Disease Center

Statistics Section

Madeline L. Brown, R.R.L., 2811 Mills Ave., N.E., Washington, D. C., Chief Librarian, New George Washington University Hospital

Patricia A. Cavanagh, A.B., 3107 Lewiston Ave., Berkeley 5, Calif., Graduate Student in Public Health Statistics, School of Public Health, Univ. of California

Neva R. Deardorff, Ph.D., 52 Gramercy Park, New York 10, N. Y., Director, Research and Statistics, Health Insurance Plan of Greater New York

Grenevere M. Freedman, A.M., 148–25 89th Ave., Jamaica 2, N. Y., Research Asst. in Psychiatry, Columbia University, Medical School, Dept. of Medical Genetrics

Mabel Reid, A.M., 165–17 Highland Ave., Jamaica 3, N. Y., Consultant on Records and Statistics, Visiting Nurse Service of New York

Virginia Watson, A.R.C., National Blood Program, Washington 9, D. C., Research Analyst on the National Blood Program Staff, American Red Cross

Engineering Section

Thomas C. Adams, Ph.D., 242 South 12th East, Salt Lake City 2, Utah, Consulting Engineer

Walter P. Boylston, B. S., State Board of Health, Columbia, S. C., Principal Sanitarian, Director of Meat Sanitation

Edward W. Conners, Jr., 6901 Montview Blvd., Denver, Colo., Sanitarian I, Denver Health Dept.

Walter Dardel, C.E., Aarberg, Berne, Switzerland, Consulting Sanitary Engineer, Private Practice

William A. Gorman, B.S., Public Health Service, F.S.A., 42 Broadway, New York 4, N. Y., Public Health Engineer

Norman F. Hauret, B.S., 1455 5th St., Berkeley 2, Calif., Student, Univ. of California, School of Public Health

Robert D. Hennigan, C.E., 1411 Bellevue Ave., Syracuse 4, N. Y., Asst. District Sanitary Engineer, New York State Dept. of Health

Roger D. Lee, B.S., 108 Jason St., Arlington 74, Mass., Student, Harvard University

Major Frank G. Lord, 4861 S. 28th St., Arlington, Va., Chief, Environmental Sanitation Branch, Preventive Medicine Division, Office of the Surgeon General, USAF

George O. Motry, 2921 Woodland Ave., Baltimore 15, Md., Chief, Division of Community Sanitation, Baltimore City Health Dept.

W. W. Vincent, State Board of Health, Bennettsville, S. C., District Supervising Sanitarian

John E. Waaser, M.S., City Health Dept., Hammond, Ind., Senior Sanitarian

Industrial Hygiene Section

Karl T. Benedict, M.D., 111 Worcester St., West Boylston, Mass., Medical Director, Norton Company, Worcester, Mass.

John P. Brady, B.S., 10 Hill St., Newark 2, N. J., Director, Edel Laboratories

Wilbur M. Bullard, 1105–44th Drive, Long Island City, N. Y., Asst. to the Vice President, American Seal Kap Corp.

Theodore F. Hatch, S.M., Univ. of Pittsburgh, School of P.H., Pittsburgh, Pa., Professor of Industrial Health Engineering

Arthur E. Hoag, M.D., Socony-Vacuum Oil Co., Inc., 26 Broadway, New York 4, N. Y., Medical Director

Col. William F. Patient, M.C., March Air Force Base, Hq. 15th A.F., Riverside, Calif., Surgeon, 15th Air Force

Myron A. Snell, Hartford Accident & Indemnity Co., Hartford 15, Conn., Supervising Engineer

Food and Nutrition Section

Edward E. Anderson, Ph.D., Food Technology Dept., Univ. of Massachusetts, Amherst, Mass., Asst. Research Professor in Food Technology

Frances Crain, 176 Bingham, Memphis, Tenn., Director, Memphis Dairy Council

Dr. Wilhelm Halden, 6 Kernstockgasse, Graz-Kroisbach, Austria, Vice-Chairman, Food and Nutrition Division, Austrian Public Health Assn.

Mary Louise Kaylor, B.S., P.O. Box 223, Ebensburg, Pa., Nutrition Consultant, Pennsylvania Dept. of Health

Jean Ritchie, M.S., 1201 Connecticut Ave., N.W., Washington 6, D.C., Nutrition Officer, Food and Agriculture Organization of the United Nations

Maurice E Shils, Sc.D., 600 West 168th St., New York 32, N. Y., Asst. Professor of Nutrition, Columbia University, School of Public Health

Clarence W. Weber, M.S., Sweet's Crossing, Nassau, N. Y., Assoc. Milk Sanitarian, New York State Dept. of Health

Maternal and Child Health Section

Ramon Berges S., M.D., 310 West End Ave., New York, N. Y., Private Practice

Public Health Education Section

Ruth C. M. Anderson, R.N., 100 North Main St., Providence, R. I., Exec. Secy., Rhode Island Tuberculosis and Health Assn.

Constance M. Austin, R.A., 370 Temple St., New Haven, Conn., Student, Yale Graduate School, Public Health Dept.

Leon J. Bickham, M.S.P.H., 2648 Orleans Ave., New Orleans 19, La., Health Education Supervisor, New Orleans Health Dept.

Hilda I. Brown, B.S., 322 Clifton Ave., Kingston, N. Y., Public Health Educator, Dept. of Health, County of Ulster

Ben D. Clower, B.A., 4033 Lawther Drive, Dallas, Tex., Attorney at Law

O. Herbert Ellis, M.A., M.P.H., 105 E. Summit St., Ann Arbor, Mich., Student, Univ. of Michigan

Gustavo Hitzig-Berggrun, M.D., Carrera 17 No. 33–22, Bogota, Colombia, S. A., President, Colombian Cancer Committee

Irma P. Manning, A.B., 309 University Bldg., Syracuse 2, N. Y., Exec. Secy., Onondaga County Branch, American Cancer Society

Charles N. Poskanzer, M.S., 321 Congress Ave., New Haven 11, Conn., Student, Yale School of Medicine, School of Public Health

Robert B. Travis, 182 Barkley St., Victoria,

B. C., Canada, Student, School of Hygiene and Public Health, University of Toronto

Bryce L. Twitty, M.A., 1653 East 12th, Tulsa, Okla., Administrator, Hillcrest Memorial Hospital

Edith W. Unruh, Horsham, Montgomery County, Pa., Nurse, Field Representative, American National Red Cross

Public Health Nursing Section

Martha F. Baer, Mercy Hospital, Saratoga & Calvert St., Baltimore 2, Md., Public Health Correlator

Ruth P. Blair, R.N., 323 Shirley Ave., Buffalo 15, N. Y., Asst. Director of Nursing, Roswell Park Memorial Institution

Alma E. Hartz, 1028 Main St., Susanville, Calif., Public Health Nurse, Lassen County Public Health Nursing Service

Gladys M. Keyes, R.N., B.S., Rt. 1, Box 71, Walnut Creek, Calif., Director, Public Health Nursing, Contra Costa County Health Dept.

Ruth R. Murray, M.A., R.N., 131 S. Center St., West Jefferson, Ohio, Orthopedic Consultant, State Welfare Services for Crippled Children

Alice M. O'Leary, B.S., Dormitory W. 7, Room 204, Richland, Wash., Supervisor of Public Health Nursing, General Electric Co.

Edwina M. Roberts, 125 N. Ingram, Henderson, Ky., Public Health Nurse, Henderson County Health Dept.

Grace O. Taylor, 856 N. Hawthorne Rd., Winston Salem, N. C., Public Health Nurse, City-County Health Dept.

Ann M. Thomson, R.N., M.P.H., 40 Concord Ave., Milton, Mass., Public Health Nursing Supervisor, Massachusetts Dept. of Public Health

Epidemiology Section

John J. Danek, M.D., 599 Ridgewood Ave., Brooklyn 8, N. Y., Research Assoc., Medical Genetics, Dept. of Psychiatry, College of Physicians and Surgeons, Columbia Univ.

Col. Wayne O. Kester, V.C., Office of the Surgeon General, Hqs. U. S. Air Force, Washington, D. C., Chief of the Veterinary Division

William E. Lattanzi, B.S., 67 Howard Ave., New Haven, Conn., Student, Yale University, School of Public Health

Brig. Gen. James A. McCallam, V.C., Office of the Surgeon General, Room 2064, Main Navy Bldg., Washington 25, D. C., Chief, Veterinary Service, Medical Dept., U. S. Army

Margaret H. D. Smith, M.D., Tulane Medical School, 1430 Tulane Ave., New Orleans, La., Asst. Professor of Pediatrics

School Health Section

R. J. Christian, 6856 Eastern Ave., Washington 12, D. C., Manager, Life and Health, The National Health Journal

Dr. Alan Foord, 615 N. Wolfe St., Baltimore 5, Md., Research Assoc., Johns Hopkins University, School of Hygiene and Public Health

Lester M. Fraley, Ph.D., University of Md., College Park, Md., Dean, College of Physical Education, Recreation and Health

Dorothy Gray, 203 No. Wabash Ave., Chicago 1, Ill., Exec. Secy., Illinois Society for Prevention of Blindness

Harriett B. Randall, M.D., 451 N. Hill St., Los Angeles 12, Calif., Asst. Medical Director, Los Angeles City Schools

Saburo Shirato, M.D., 414 W. 118th St., New York 27, N. Y., Student, School of Public Health, Columbia University

Jean A. Singleton, M.D., C.M., D.P.H., Box 138, European Hospital, Nairobi, Kenya, East Africa, School Medical Officer, Colony and Protectorate of Kenya, Government Service

Elizabeth P. Squier, R.N., 167 East 82nd St., New York 28, N. Y., School Nurse, Boardman School

Florine N. Thomason, R.N., B.S., 1907 Stuart Ave., Richmond 20, Va., Chief Nurse, Richmond Public Schools

Madeline I. Wernli, R.N., B.S., 102 Zabriskie St., Jersey City 7, N. J., College Nurse and Health Instructor, State Teachers College

Dental Health Section

Dorothy A. Keune, 512 Stone Ave., Neenah, Wis., Dental Hygienist, Neenah Public Schools

Earl G. Ludlam, D.D.S., M.P.H., Dental Health, Broad St., Bank Bldg., Trenton, N. J., Chief, Dental Division, New Jersey State Dept. of Health

Irwin W. Scopp, D.D.C., 4 Stuyvesant Oval, New York 9, N. Y., Asst. Chief, Dental Service, Veterans Administration

Medical Care Section

Neil V. Beeby, R.N., B.S., 1790 Broadway, New York 19, N. Y., Editor, American Journal of Nursing

Thomas H. Bride, LL.B., 130 West Exchange St., Providence, R. I., Administrator, Dept. Employment Security, State of Rhode Island

Margaret Bullowa, M.D., 118 Mount Vernon St., Boston 8, Mass., Private Practice of Child and Adult Psychiatry

Mac F. Cahal, J.D., 406 W. 34th St., Kansas City 2, Mo., Exec. Secy., American Academy of General Practice

Freda B. Goldfeld, M.A., 71 St. Marks Place, New York, N. Y., Director, Social Service Dept., Beth Israel Hospital, New York City

Jason A. Hannah, M.D., C.M., 615 Yonge St., Toronto, Canada, Managing Director of Associated Medical Services, Inc.

George W. Jacobson, B.S., 180 North Snelling Ave., St. Paul, Minn., Secretary-Treasurer, General Manager, Group Health Assn.

Jay C. Ketchum, 234 State St., Detroit 26, Mich., Exec. Vice-President, Michigan Medical Service

Robert E. Rothenberg, M.D., 9 Lafayette Ave., Brooklyn, N. Y., Surgeon, Central Medical Group of Brooklyn

Charles G. Skinner, B.S., 1212 S. 8th St., Minneapolis 4, Minn., Administrative Fellow, Univ. of Minnesota Hospitals

Channing G. Smith, M.D., Iowa Bldg, Des Moines, Iowa, Medical Consultant, Iowa State Board of Social Welfare

Leif Thorne-Thomsen, B.S., Permanente Hospital, 14th & Cutting Blvd., Richmond, Calif., Administrator

Frank W. Threadgill, M.D., 1230 Elm St., El Cerrito, Calif., Student, School of Public Health, Univ. of California

Byron Wham, A.B., 421 Calhoun Office Bldg., Columbia, S. C., Supervisor of Physical Restoration, Div. of Vocational Rehabilitation, State Dept. of Education

Unaffiliated

Donald J. Evans, D.O., 1434 W. McNichols Road, Detroit, Mich., Practising Osteopathic Physician

Dorothy R. Granoff, M.D., 327 Whalley Ave., New Haven, Conn., Student, Yale Univ., School of Public Health

Richard H. Mattox, B.A., 17 Maple Ave., Slingerlands, N. Y., Personnel Officer, New York State Dept. of Health

A. Torab Mehra, M.D., M.P.H., Shahreza Ave., opposite Ramsar, Tehran, Iran, Medical Director, The Iran Foundation, Inc.

J. Teague Self, Ph.D., Dept. of Zoological Sciences, Univ. of Oklahoma, Norman, Okla., Professor of Zoölogical Sciences

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FLORIDA PUBLIC HEALTH ASSOCIATION

Delegates, approximately 500 of them, to the 21st annual convention of the Florida Public Health Association held October 6 to 8 in West Palm Beach agree that it was the most successful one ever held.

Not only did the convention break attendance records, but it marked the first time that a woman, Ruth E. Mettinger, was seated as president of F.P.H.A. Miss Mettinger is director of nursing for the State Board of Health, a position she has held since 1934.

Named to serve on the slate with her were: Robert G. Carter, State Improvement Commission, first vice president; Mrs. Malcolm Smith, director, Florida Cancer Society, second vice president. Returned to office were Fred Ragland, finance officer and Miss Elsie Hyatt, also of the State Board of Health, as secretary and treasurer, respectively.

The Association went on record as urging "continued active opposition to any move for the consolidation of health and welfare administration in this country."

MINNESOTA PUBLIC HEALTH CONFERENCE

The new officers of the Minnesota Public Health Conference elected at the Third Annual Meeting held in Minneapolis on September 30 are:

President: F. W. Behmler, M.D., Morris

1st Vice-President: V. O. Wilson, M.D., Rochester

2nd Vice-President: E. A. Meyerding, M.D., St. Paul

Treasurer: C. G. Sheppard, M.D., Hutchinson

Executive Secretary: Dean S. Fleming, M.D., Minneapolis

Herbert Bosch was elected to represent the Conference on the Governing Council of the A.P.H.A.

A.P.H.A. membership application blank on page XXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Health Officers—Two, in well established, full-time health districts. Three years' experience and a year of graduate training in public health desired. Salary range of $8,280–$10,080 plus traveling expenses. Dr. J. A. Kahl, State Director of Health, 1412 Smith Tower, Seattle, Wash.

Bacteriologist, male, Ph.D., or M.D., interested in viruses or immunology for an instructorship or assistant professorship in a midwestern medical college. Salary $4,000–$6,000 plus insurance plan. Teaching load light and excellent facilities for research. **Box A-73**, Employment Service, A.P.H.A.

Bacteriologist—training and some experience in industrial microbiology to assist in planning and execution of research and field projects in canning industry. Aptitute in analyzing and reporting experimental data essential. Eastern location. Salary open. **Box A-74**, Employment Service, A.P.H.A.

Dentists—half-time and full-time positions in the Cincinnati School Dental Clinics. Salaries up to $4,754. Vacation and sick leave with pay; retirement benefits; Ohio license required. Dr. E. H. Jones, D.D.S., Oral Hygiene Services, 4th and Ludlow, Cincinnati, Ohio.

Physician (male) as Medical Director and Deputy Health Officer. Experience in venereal disease control desirable, not essential. Charge of communicable disease and city school health control. Salary $7,290–$8,000, transportation allowance; annual sick leave and retirement benefits. Medical license in Michigan or reciprocal registration. Secretary, Personnel Advisory Board, City Hall, Saginaw, Mich.

Director of Public Health Nursing with academic degree, major in public health nursing and experience in supervision; generalized program in urban area of 76,000 near Milwaukee and Chicago. Nursing staff of 14; Full-time medical director; 42 hour week. Beginning salary $3,444. Transportation furnished. Commissioner of Health, 730 Washington Ave., Racine, Wis.

Sanitary Engineer or Sanitarian with Bachelor's degree and at least three years' experience in health departments mostly at local level. Survey work with National health agency involving extensive travel, East of Rockies. **Box A-75**, Employment Service, A.P.H.A.

Public Health Engineers, Grades I to IV. Beginning salaries $3,300–$4,500. Duties pertain to water supplies, sewerage, stream pollution control and general sanitation. District and central office vacancies. Merit System Director, 809 Insurance Exchange Building, Des Moines 9, Ia.

Public Health Nurse, Educational Director, Dade County Health Department, population 405,000, urban and rural. General service including school health program. Fifty-one public health nurses on staff; five day week, sick leave, vacation, retirement plan. Beginning salary $3,300, 7½¢ mileage. B.S. degree with major in public health, adequate field and supervisory experience. Dr. T. E. Cato, Health Commissioner, 800 Court House, Miami, Fla.

Three qualified Public Health Nurses for County Health Department 35 miles from San Francisco. Generalized program, urban and rural. Salary $3,276–$3,660 plus $600 car allowance. Director of Nursing, Vallejo-Solano County Department of Public Health, 228 Broadway, Vallejo, Calif.

Bacteriologist — strong background in bacteriology and immunology, preferably Ph.D., with broad knowledge of biologicals, antibiotics and germicides. Commercial laboratory experience desirable but not essential. Supervisory ability and knowledge of official regulations desirable. Submit qualifications, salary requirements and photograph to Employment Department, Eli Lilly and Company, Indianapolis, Ind.

Health Officer for Waterbury, Conn. Salary $8,300, monthly allowance $35 for transportation. Edward W. Kirschbaum, M.D., Acting Health Officer, Department of Public Health, Waterbury, Conn.

Assistant Health Officer. Opportunity for young physician in large county; generalized program with emphasis on school

health services. Previous experience and training desirable but not essential. Salary $7,000–$7,500 plus car allowance and official expenses. **Box A-76**, Employment Service, A.P.H.A.

Public Health Staff Nurses; generalized nursing service; population approximately 63,000 rural community. Salary range $280–$300. Transportation provided. P.H.N. certificate and experience preferred. Two weeks' vacation, two weeks' sick leave, forty hour week. Director of Public Health Nursing, Merced County Department of Public Health, P. O. Box 1350, Merced, Calif.

Chief Meat Inspector—Graduate veterinarian to head Division of Meat Inspection. Duties supervisory and administrative. Texas License necessary. Salary $400 per month, plus mileage. R. E. Johnson, M.D., Director, Health Unit, P. O. Box 49, Corpus Christi, Tex.

POSITIONS WANTED

Bacteriologist, Ph.D. (woman). Many years' experience, desires position as supervisor in medical bacteriology or teaching, East. **Box LD-6**, Employment Service, A.P.H.A.

Public Health Educator, B.A. and postgraduate study in Public Health and Preventive Medicine. Washington, Oregon or California preferred. Box **HE-19**, Employment Service, A.P.H.A.

Bacteriologist—B.S., five years' experience public health bacteriology, parasitology, clinical laboratory work including medical bacteriology, chemistry, blood banking and serology. Desires position in public health laboratory or industry. **Box L-7**, Employment Service, A.P.H.A.

Health Educator, woman, A.B., M.A. degrees, experienced in administration and public relations as well as promotion and work with groups. Teaching experience in schools and college; rural and city programs of official and voluntary agencies. **Box HE-20**, Employment Service, A.P.H.A.

Announcements

Opportunities in Detroit, Michigan

The Detroit Civil Service Commission, Water Board Building, 735 Randolph Street, Detroit, Mich., announces the following opportunities:

Public Health Staff Nurses—salary $3,222–$3,582, in-training program at $2,876–$3,140. Generalized program, opportunity for academic work at university. Forty hour week, vacations and sick leave, pensions, maternity leave, death and sickness benefits, duty disability allowances. Qualifications: for staff positions, 22–30 years, must possess equivalent of public health nursing certificate; trainees, 20–25 years, must be through nurses' training, eligible to matriculate in university.

Senior Dentist—large municipal clinic. Must have license to practise in Michigan. Salary $4,062; thirty hour week, five days.

Junior and Senior Veterinarian—salary rates—Junior Veterinarian, $3,034–$4,068; Senior Veterinarian $3,591–$4,068.

Opportunities in Connecticut

The State of Connecticut, announces openings for physicians, nurses, and various openings in related institutional services. Address inquiries to: Personnel Department, Glendon A. Scoboria, Personnel Director, State Capitol, Hartford, Conn.

Physicians	
Assistant Physician	$4,800–$6,480
Asst. Chief Surgeon	$6,780–$8,220
Physician and Psychiatrist	$6,680–$8,220
Residents in Psychiatry	$2,820–$3,540
Senior Physician	$6,480–$7,680
Senior Physician (psychiatry)	$6,480–$7,680
Intern	$2,220–$2,700
Chief Anesthetist	$7,020–$8,460
Director of Clinical Laboratories	$6,780–$8,220

Nurses	
Charge Nurse	$2,820–$3,300
Grad. Nurse	$2,580–$3,060
Nurse Supervisor	$3,180–$3,900
P. H. Nurse Consultant TB	$3,480–$4,380
TB Control Nurse	$2,760–$3,480
Director of Nursing Ed.	$3,780–$4,680

Institutional Services	
Chemist	$2,820–$3,420
Head Lab. Tech.	$2,820–$3,420
Lab. Tech.	$2,400–$2,880
Occupational Ther.	$2,460–$3,300
Psy. Soc. Worker	$2,460–$3,300
Psychologist	$3,000–$3,900
Sen. Psy. Soc. Wkr.	$3,120–$3,840

Opportunities with World Health Organization

The World Health Organization is recruiting for staff positions. Persons interested should communicate with Dr. Fred L. Soper, Regional Director, World Health Organization, 2001 Connecticut Avenue, N. W., Washington 8, D. C.

Chief of Section on Environmental Sanitation

Medical Officer in charge of Biological Standardization

Medical Officer Venereal Diseases—Serologist
Research Assistant Mental Health Section—Headquarters
Medical Officer—Assistant Chief of Section on Tuberculosis
Consultant in Social and Cultural Aspects of Operational Services
Medical Officer—Venereal Diseases (Assistant Chief of Section)
Regional Adviser on Environmental Sanitation
Regional Medical Adviser on Venereal Diseases
Regional Medical Adviser on Malaria
Regional Medical Adviser on Tuberculosis

Announcement of Regular Corps Examinations U. S. Public Health Service

Position Title	*Beg. Salary*	*Deadline for Application*	*Exam date*
Medical Officers		December 12, 1949	Jan. 9, 10, 11, 1950
Asst. Surgeon	$5,686.56		
Senior Asst. Surgeon	$6,546.00		
Pharmacists		January 23, 1950	Mar. 6, 7, 8, 1950
Junior Asst. Pharm.	$3,969.00		
Asst. Pharm.	$4,486.56		
Senior Asst. Pharm.	$5,346.00		
Physiologists		January 2, 1950	Feb. 6, 7, 8, 1950
Assistant	$4,486.56		
Senior Assistant	$5,346.00		
Psychologists		February 20, 1950	Mar. 20, 21, 22, 1950
Assistant	$4,486.56		
Senior Assistant	$5,346.00		

Application forms and additional information may be obtained from: Surgeon General, U. S. Public Health Service, Federal Security Agency, Washington 25, D. C. Attention: Division of Commissioned Officers.

Opportunities in Wisconsin

The following vacancies exist in the State Board of Health:

Medical Specialist I—
$6,984 (start. salary incl. bonus)
Pediatrics
Obstetrics, gyn.
Psychiatry
Tuberculosis

Medical Specialist II—
$8,064 (start. salary incl. bonus)
Tuberculosis

Public Health Physician I—
$6,984 (start. salary incl. bonus)
District Health Officer

Public Health Physician II—
$8,064 (start. salary incl. bonus)
District Health Officer
Maternal & Child Health
Epidemiology
Industrial Hygiene

The following vacancies exist in the State Department of Welfare:
Psychiatrist I—$6,984 (start. sal. incl. bonus)
Psychiatrist II—$8,064 (start. sal. incl. bonus)
Psychiatrist III—$8,544 (start. sal. incl. bonus)
For information on the above openings write to Bureau of Personnel, Madison 2, Wisc.

Exchange Placement Service of the A.A.H.P.E.R.

The American Association for Health, Physical Education and Recreation, a department of the National Education Association (1201 Sixteenth Street, N.W., Washington 6, D. C.) announces the establishment of an exchange placement service for health educators, physical educators, and recreation leaders. Referrals of possibly suitable candidates will be made to employers without any responsibility for the position or recommendations and references for the candidate. This service will be rendered without charge to the members of the A.A.H.P.E.R. There are no basic requirements for applicants. According to the A.A.H.P.E.R. openings and candidates in the fields of both community and school health education will be considered.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

PUBLIC HEALTH PHYSICIANS FOR THE FOLLOWING: (a) Directors for maternal and child health, epidemiology, and industrial hygiene, and also several district health officers; state health department; salaries for directors dependent upon qualifications; for district health officers, $8,000. (b) Director of public health school, state university. (c) Assistant health officer; metropolitan area of East. (d) Director, university health service; student enrollment 9,000; excellent facilities; opportunity for developing efficient program. (e) County health director; county of 300,000; challenging opportunity; $8,500–$10,000; California. (f) Clinic service and administrative assisting; state health department, large city of Pacific Northwest. (g) Director, school health program; enrollment more than 12,000; winter resort town, Southwest. (h) Deputy health commissioner; one of largest counties in Michigan. PH12-1 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH DENTISTS FOR FOLLOWING: (a) To serve as county dental health officer; around $5,000, Middle West. (b) To practise principally with children; outside Continental United States; considerable traveling. (c) To conduct dental health program, state department of health; West. (d) School dentist; mining community of southeast state; mobile unit; $6,000. PH12-2 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED—(a) Epidemiological research analyst to conduct community surveys and to evaluate combined control program of tuberculosis association and health department; duties include research; degree, year's postgraduate training and several years' public health experience required; large city outside Continental United States. (b) Sanitary engineer thoroughly experienced in fields of malaria and insect control; key position, South America; $7,000. (c) Sanitarian; state board of health with headquarters in university center, Middle West. PH12-3 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

PUBLIC HEALTH NURSES FOR FOLLOWING: (a) To direct child welfare program; orthopedic training desirable; headquarters in university town; $4,200–$4,800; Northwest. (b) Director of public health nursing; municipal health department; staff of 12 field nurses, one supervisor; town of 80,000, short distance from Chicago. (c) Director, public health nursing program; eastern university. (d) Orthopedic consultant, generalized consultant and public health nurses for county and school posts; state department of health, West. (e) To conduct health education program in tuberculosis control among Negro population; county health department, Middle West. (f) To direct generalized public health program; college town of 80,000, metropolitan area of East. (g) Field nurses, county health department, Southern California; salaries dependent upon experience. (h) Public health coördinator; fairly large hospital; Hawaii. (i) School nurse to direct health program, resort town, 15,000, Pacific Northwest. (j) Student health nurse, young women's college; living accommodations on campus; will have privilege of all campus facilities; East. (k) Executive secretary; state nurses' association; public health nursing experience desirable; considerable traveling. (l) Staff nurse; newly organized service, generalized program; Chicago area. PH12-4 Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Opportunities Wanted

Dentist, qualified public health and children's dentistry; B.A., D.D.S., M.A., Ph.D., leading schools; year's residency, children's dentistry; teaching experience; research has been particularly concerned with administrative and educational problems in connection with children's dental programs in underdeveloped areas; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; Master's degree, Public Health, Eastern university; four years, health educator, county health department; three years, health coördinator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nurse administrator; B.S. (Education); MPH; four years, consultant in public health and school nursing, metropolitan health department; past several years, director, health education program, county health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Physician distinguished in field of public health medicine is available; M.S., M.D., D.P.H. degrees, leading schools; enviable career of successful experience in academic and administrative public health work; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary Engineer, B.S. (Civil Engineering); year's graduate training, Harvard Graduate School of Engineering; twelve years' experience; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Statistician; M.S., Ph.D. degrees; five years' teaching experience; past several years, director vital statistics, division city health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

INTER-ASSOCIATION COMMITTEE ON HEALTH

Six large national professional associations concerned with the nation's health have formed an Inter-Association Committee on Health to study and discuss methods of improving health care for the nation. The third meeting was held November 12 at the Hotel Statler, New York City, at which time the following announcement was authorized:

Participating associations are: The American Dental Association, American Hospital Association, American Medical Association, American Nurses Association, American Public Health Association, and American Public Welfare Association.

The committee will serve as a means for the exchange of information on the programs of the participating organizations to the end that a common understanding may be reached toward the solution of national health problems. The committee will carry on activities contributing to the major objectives of improving the health of the nation. The committee adopted principles of organization which are to be recommended for approval to the appointing organizations each of which is represented by three members.

Representing the American Dental Association were Dr. Philip E. Adams, President, Boston; Dr. William McGill Burns, Trustee, Brooklyn; Dr. Kenneth A. Easlick, Ann Arbor; Dr. Harold Hillenbrand, Secretary, Chicago.

Representing the American Hospital Association were: John N. Hatfield, President, Philadelphia; John H. Hayes, New York City; Dr. Charles F. Wilinsky, President-elect, Boston; George Bugbee, Executive Director, Chicago.

Representing the American Medical Association were Dr. Louis H. Bauer, Chairman, Board of Trustees, New York; Dr. E. S. Hamilton, Kankakee, Ill.; Dr. E. L. Henderson, President-elect, Louisville, Ky.; Dr. James R. Miller, Trustee, Hartford, Conn.; Dr. George F. Lull, General Manager, Chicago.

Representing the American Nurses Association were Agnes Gelinas, New York; Ruth W. Hubbard, Philadelphia; Elizabeth K. Porter, Cleveland; Ella Best, Executive Secretary, New York.

Representing the American Public Health Association were Dr. Hugh R. Leavell, Chairman, Executive Board, Boston; Dr. Lowell J. Reed, President, Baltimore; Dr. Dean A. Clark, Chairman A.P.H.A. Sub-committee on Medical Care, Boston; Dr. Reginald M. Atwater, Executive Secretary, New York.

Representing the American Public Welfare Association were Loula Dunn, Director, Chicago; Raymond M. Hilliard, Member, Board of Directors, New York; James Brindle, Chairman, Committee on Medical Care; Dr. Ellen C. Potter, Trenton, N. J.; Elizabeth Wickenden, Washington.

STATE HEALTH OFFICERS MEET

The 48th Annual Surgeon General's Conference with the State and Territorial Health Officers was held in Washington, October 18–22. The following officers were elected.

President: Wilton L. Halverson, M.D., California

Vice President: Roy L. Cleere, M.D., Colorado

Secretary-Treasurer: Leroy E. Burney, M.D., Indiana

Executive Committee: Floyd C. Beelman, M.D., Kansas; Newman H. Dyer, M.D., West Virginia; Vlado A. Getting, M.D., Massachusetts

In addressing the meeting, Oscar R. Ewing, Federal Security Administrator, expressed the opinion that the 81st Congress had displayed more interest in health measures than any Congress in history. He cited the following Congressional actions in support of this position:

1. A doubling of the annual hospital construction authorization (including health centers) to a total of $150,000,000 in federal funds and a provision for $1,200,000 for research into hospital service systems.

2. Passage by the Senate of the bill in aid of training for professional personnel, together with a favorable report from the House Committee.

3. Favorable action by the Senate on the bill for support of grants to states for local health services and approval by House Subcommittee.

4. Senate action on the school health services bill with no action in the House.

5. Legislation aimed to extend research activities of the Public Health Service, including two new research institutes, one on neurological diseases and blindness and the other on rheumatism and arthritis, supported by the Senate.

Mr. Ewing called attention to the fact that there was no affirmative action on a series of bills to extend health services for children by increasing federal grants for maternal and child health from $11,000,000 to $25,000,000 annually, and crippled children's services from $7,500,000 to $25,000,000. Nor was action taken on the proposal to add $10,000,000 to the field of child research.

In speaking to the group, Surgeon General Leonard A. Scheele recalled that in 1903 the total expenditure of the Public Health Service was $1,274,000, whereas during the current year it will be $353,499,000, including hospital construction. Dr. Scheele announced that a small unit of officers has been trained in coöperation with the Atomic Energy Commission to give advice on the control of health hazards arising from radiation-producing equipment and radioactive materials. He pointed to the need of more research in air pollution by industrial chemicals as a result of the Donora, Pa., "smog" study.

A number of resolutions were adopted by the Conference as follows:

1. Urging Congress to establish a Department of Health headed by a career physician of the U. S. Public Health Service.
2. Recommending federal grants in aid available for the establishment or strengthening of schools of public health.
3. Condemning the Truman-Ewing plan for compulsory health insurance.
4. Requesting another communicable disease conference in 1950 similar to the one conducted in Atlanta just before the current Surgeon General's Conference.
5. Approval of showing in schools and churches the films "Human Growth" and "Human Reproduction."
6. Recommending that the Service and the Children's Bureau jointly provide government support for a recruitment program proposed by the American Public Health Association. This resolution in full reads:

WHEREAS, the implementation and success of each and every public health program depends upon the availability of adequately trained and experienced personnel, and

WHEREAS, there are many vacancies in Federal, State and local health agencies, and

WHEREAS, health agencies are not able to procure the needed personnel, therefore be it

RESOLVED that the Association of State and Territorial Health Officers urge the Public Health Service and the Children's Bureau to determine forthwith the method whereby the American Public Health Association can be financially assisted by the Federal agencies concerned in their "Personnel Procurement Program," and be it further

RESOLVED that the States and Territories hereby agree to finance this project by assessment against their Federal grants-in-aid for these services, and that the Executive Committee of the Association of State and Territorial Health Officers be directed to develop with the Public Health Service and Children's Bureau a method for paying from the grants-in-aid on an agreement for service rendered basis payment directly from the Public Health Service and the Children's Bureau, Federal Security Agency.

HILL-BURTON ACT LIBERALIZED

An amendment to the Hill-Burton Hospital Construction Act, passed by the first session of the 81st Congress, increased federal grants to states for construction of hospitals and health centers from 75 to 150 million dollars annually. A new formula permits federal contribution up to two-thirds of the cost of construction of new hospitals as against a one-third ceiling of the original law, with a formula that can be weighted in favor of lower income communities. It also extends the period during which allotments may be made from June 30, 1950, to June 30, 1955. It further provides $1,200,000 annually for 5 years for a research program looking toward coördination and improvement of hospital services.

The construction program of the Hill-Burton Act is administered by the Public Health Service under direction of its Surgeon General, Leonard A. Scheele. As of October 1, 1949, 50 hospitals had been completed and were in operation, 400 were under construction, and a total of 954 projects approved. The majority

of those already completed are small general hospitals located in small towns or rural areas. An integral part of the construction program is the coördination of such small hospitals into a regional system with a fully equipped teaching and medical center at its apex. Four such regional projects are now in operation centered respectively in the Medical College of Virginia, the New England Medical Center, the Council of Rochester (N. Y.) Regional Hospitals, and University of Michigan Medical School.

CARE BOOK PROGRAM FOR PUBLIC HEALTH RECONSTRUCTION

The Cooperative for American Remittances to Europe, Inc. (CARE), a nonprofit corporation, proposes to Americans a channel through which they can provide new text and reference books in public health and other scientific fields to libraries, universities and technical schools in war depleted countries. The need for such gifts grows out of the widespread destruction of books through book burning and bombing. Throughout the war years and since no new books have come into a full half of the world. The many problems of reconstruction, combined with printing difficulties and lack of dollars, have continued to make it impossible for foreign countries to replenish their libraries with reference and text books on the scientific and technical advances made during and since the war.

Contributions for the Book Program in any amount are accepted at CARE headquarters, 20 Broad Street, New York, or in any local CARE office throughout the country.

RURAL DOCTORS FOR OHIO

The Ohio State Medical Association has established a Rural Medical Scholarship plan "to stimulate interest on the part of rural young men and women in the study of medicine, with the belief that, because of their interest in rural life, they will later establish medical practices in rural communities."

The plan is limited to residents of smaller Ohio communities. It provides annual grants of $500 to successful candidates for a period of four years, providing the candidate does acceptable academic work. One new scholarship will be awarded annually and the recipient may enroll at any approved medical school in the country.

UTAH HAS HEALTH AUDIT

The State of Utah recently sought the services of Dr. Ira V. Hiscock, New Haven, Conn., chairman of the Subcommittee on State and Local Health Administration of the A.P.H.A. Committee on Administrative Practice as a consultant. In a short but productive visit Dr. Hiscock helped the state officials and citizens define their problems clearly and establish a practical plan for early definitive action.

The Ogden (Utah) *Standard-Examiner* described the event as follows:

"Yale University's Dr. Ira V. Hiscock wrote a report about Utah's public health department that hurts. It hurts so much that like a diseased tooth something will be done about it.

"The report hurt when Dr. Hiscock said that Utahans die unnecessarily from diphtheria, intestinal and respiratory diseases and tuberculosis.

"It hurts to read that we have problems of environmental sanitation, which means that a lot of places are filthy when they should be clean and sweet.

"And it hurts when he says we do not have a reasonably adequate public health program because the state has been too cheap to pay fair salaries.

"Dr. Hiscock knows how to get under our skin in Utah where we pride ourselves on our progress in education. He wrote: 'An educated child in the graveyard is of little value to the community or the state.'

"He said a lot in a paragraph of his report as follows:

"'This is no time for complacency, vested interests, red tape or petty bickering over administrative details. Without proper steps to assure a reasonably adequate, although minimum, health program now, and such steps toward constructive long-range plans and coöperative action, the time, money, and energy devoted to agriculture, education, pub-

lic works, welfare and other governmental enterprises will not be used to the best advantage for the people of Utah.'

"We can stop the 'bickering over administrative details' by improving the state health department plan of organization so that the State Board of Health becomes solely a policy making body whose policies are carried out by the State Health Commissioner.

"Governor Lee promises action to build up the department. That is splendid. We should move quickly to carry out Dr. Hiscock's recommendation, so we don't lose any more of the good men and women in the department."

FIRST CARDIOVASCULAR MEETING

What is said to be the first national meeting of its kind, a National Conference on Cardiovascular Diseases, will be held in Washington, D. C., January 18–20, 1950. Called jointly by the American Heart Association and the National Heart Institute of the Public Health Service, the Conference will be staffed by the two agencies with John W. Ferree, M.D., Director of Public Health, American Heart Association, serving as conference director. The invited participants will represent public health, nursing, social work, hospital administration and rehabilitation, as well as the medical disciplines.

H. M. Marvin, M.D., president of the Heart Association and C. J. Van Slyke, M.D., director of the Heart Institute, in calling the Conference said "The time is ripe for the forces of research, community service, and education to close ranks in the fight against diseases of the heart and circulation. This conference, we hope, will provide the guideposts for a comprehensive and concrete program of action to correlate an all-out national attack on the heart disease problem."

COMMUNICABLE DISEASE CENTER CONFERENCE FOR STATE HEALTH OFFICERS

The state and territorial health officers of the United States were guests of the Communicable Disease Center, U. S. Public Health Service, in Atlanta, Ga., October 17 and 18 for a conference at the Fulton County Academy of Medicine.

State health officers were welcomed by Surgeon General Leonard A. Scheele on behalf of the Service, and a series of ten panels were presented by the staff of the Communicable Disease Center in coöperation with selected state health departments. The subjects of the panels included the general considerations of communicable disease control, morbidity reporting, tuberculosis, the virus diseases, amebiasis, diphtheria, rabies, brucellosis, salmonellosis, and streptococcal infections.

Opportunities were given those present to see the facilities of the Communicable Disease Center in Atlanta and at Chamblee, Ga., including the audio-visual production at Chamblee. More than 200 registrants from the state departments of health and the Public Health Service were in attendance.

COLUMBIA ACCREDITED FOR MASTER'S DEGREE IN HEALTH EDUCATION

On October 23, 1949, the Executive Board, on the recommendation of the Committee on Professional Education, accredited the Columbia School of Public Health for 1949–1950 to give Master's degrees other than the M.P.H. with specialization in public health education. This accreditation is granted to Columbia in addition to the accreditation for the M.P.H. and Dr.P.H. degrees. Altogether six of the ten accredited schools of public health are now accredited for Master's degrees other than the M.P.H. with specialization in public health education. Lists of all accredited schools together with the degrees for which they are accredited and the names of the deans or directors are available from the A.P.H.A. central office.

THE NATION'S HOSPITAL NEEDS

The Nation's Needs for Hospitals and Health Centers by Dorothy P. Rice and Louis S. Reed has just been issued by

the Division of Hospital Facilities, Public Health Service. A 159 page booklet, it summarizes the plans of states and territories for hospital survey and construction activities under the Hill-Burton program (Public Law 725, 79th Congress). It is the first analysis published of the state plans for hospital construction under this program. Chapters are devoted to background information on the law and its operation, general methods of planning for construction programs by the states and summary data on state needs for hospital beds. State maps of hospital service areas and regions and tabular statistics occupy the bulk of the report. The report is available from the Public Health Service, Division of Hospital Facilities, Washington, D. C.

1949 HEALTH OFFICER'S DIRECTORY

The 1949 Directory of Full-Time Local Health Officers of the Public Health Service is out. It has few variations from those of former years except that it no longer makes a distinction between county and city-county health departments. The summary tables show a small increase in number of counties covered, a small decrease in city departments, a small increase in single county departments, and a slightly larger increase in district units. There has been relatively little change in number of health officer vacancies, the most significant being a rise in number and ratio of health officer vacancies in single county health departments. U. S. Gov. Ptg. Office, Washington 25, D. C., 15 cents.

THE JOHN SCOTT AWARD TO DR. KING

Charles Glen King, Ph.D., scientific director of the Nutrition Foundation, New York, and professor of Chemistry at Columbia University, has received the 1949 John Scott Award of the City of Philadelphia, recognizing his " outstanding work on the chemistry of vitamin C." The Award consists of $1,000 and a medal and was presented to Dr. King at a recent meeting of the Pittsburgh section of the American Chemical Society.

Dr. King, who was recently Chairman of the Food and Nutrition Section of the A.P.H.A., is well known for his contributions to the isolation, chemical identification, and synthesis of vitamin C (ascorbic acid). He has also conducted other fundamental researches in nutrition, has studied enzymes and done work on the molecular structure of sugars and fats.

PUBLIC HEALTH WORKERS DIE IN AIRPLANE DISASTER

The collision on November 1 between two planes near the Washington, D. C., airport, described as the worst disaster in civilian aviation, took the lives of three women who had been in attendance at the 77th Annual Meeting of the American Public Health Association in New York City in the preceding days.

Mrs. Thelma Foster of New York City, Territorial Supervisor with the Metropolitan Life Insurance Company Nursing Service in the southern states from Virginia to Florida, had previously been the Director of Nursing Activities in the Nashville-Davidson County Chapter of the American Red Cross, Nashville, Tenn. She joined the staff of the Metropolitan Life Insurance Company two years ago. She had been identified with the Public Health Nursing Section of the American Public Health Association since December, 1945. She is survived by her parents, Mr. and Mrs. George W. Shaw of Missoula, Mont.

Miss Beatrice Costa, Health Educator of Rio Piedras, Puerto Rico, and Miss Olga Martinez, a nutritionist with the Bureau of Maternal and Child Hygiene, Insular Department of Health, Santurce, Puerto Rico, also lost their lives. Miss Martinez, who held a Master of Science degree from Western Reserve Univer-

sity, had been a member of the Food and Nutrition Section since 1947. She held the title of Principal Nutritionist.

LORD BOYD ORR RECEIVES NOBEL AWARD FOR WORLD PEACE

The Nobel Committee of the Norwegian Parliament has announced that the Nobel Peace Prize for 1949 has been awarded to Lord Boyd Orr of Great Britain, nutrition expert and crusader for world government. The award this year amounts to 156,290 Norwegian kroner, said to be about $21,890. The presentation is to be made in Oslo in December.

Lord Boyd Orr, who is 69 years old, was the former Director General of the United Nations Food and Agricultural Organization. Created a Baron by King George VI early in 1949, Lord Boyd Orr is better known in the United States as Sir John Boyd Orr. He is an Honorary Fellow of the American Public Health Association.

UNIVERSITY MOBILE LABORATORY

The University of Washington Medical School's department of public health and preventive medicine has a mobile laboratory which can be rushed to any part of the state for epidemic control or for use in field research. It was used first in the Yakima valley for a follow-up research study of encephalitis which began August 1. The research was a joint investigation of the Medical School, the Washington State Department of Health, the Hooper Foundation and the University of California Medical School. Materials collected will be studied in detail later at the medical school. The laboratory is reportedly one of the few of its kind in the nation.

A SEWER ORDINANCE MANUAL

The 44 page manual of practice, *Municipal Sewer Ordinances*, is the third of the series of special manuals by the Federation of Sewage Works Associations. It was prepared by the Sewage Works Practice Subcommittee on Municipal Sewer Ordinances, of which Don E. Bloodgood is chairman.

Discussed are the consequences of inadequate control of the use of public sewers and various types of regulations as set forth in a large number of prevailing ordinances. Also considered are policies and recommended practices relating to the admission of industrial wastes into public sewers for treatment and disposal by the municipality. A procedure for evaluating and handling such wastes is presented, with a discussion of limiting values for objectionable characteristics. A "model" form of ordinance, with suggested permit forms, is included to illustrate application of the basic principles of good practice. Federation of Sewage Works Associations, 325 Illinois Building, Champaign, Ill., $1.00.

COURSE ON VIRUS RESEARCH

The Department of Microbiology of New York University College of Medicine will give an intensive ten week course in the theories and techniques of virus research, March to June, 1950. The course, occupying the full time of the student, will include lectures, discussion and laboratory work; the latter including the techniques currently used with bacterial and mammalian viruses such as, methods of cultivation, purification, concentration, and assay of viruses, their serological reactions, and the hemagglutination. Credit for two full courses or 24 points will be given by the Graduate School of New York University. Because the number of students is limited to 12, early application is recommended. Further information from the Department of Microbiology, 477 First Avenue, New York 16, N. Y.

AIR POLLUTION SYMPOSIUM

The American Meteorological Society's 30th anniversay meeting in St.

Louis, January 3–6, 1950, will feature an air pollution symposium. The symposium will be presented in two parts, the first a panel discussion on abatement, enforcement, public health significance, control equipment, etc.; the second, a series of technical papers on sources of air pollution and its control. Further information from the American Meteorological Society, 5 Joy Street, Boston 8, Mass.

DIVISION OF INDUSTRIAL HYGIENE MOVES

In line with the policy to concentrate environmental research activities in Cincinnati, a large segment of the Division of Industrial Hygiene, Public Health Service, has moved from Washington to the Environmental Health Center building in Cincinnati. Thus for the first time since the war, the Division will have adequate laboratory space.

DR. TOP MOVES TO MINNESOTA

Gaylord W. Anderson, M.D., Dr.P.H., Mayo Professor and Director, School of Public Health, University of Minnesota, Minneapolis, has announced on behalf of the School of Public Health the appointment of Franklin H. Top, M.D. of Detroit as Professor of Epidemiology, effective September 1950. According to the announcement, Dr. Top will also carry appointment in the Department of Pediatrics in the Medical School in connection with clinical instruction in the acute communicable diseases.

Dr. Top, who is a native of Michigan, was graduated in medicine from the University of Pennsylvania in 1928 and received his M.P.H. from Johns Hopkins in 1935. He has been connected with the Herman Kiefer Hospital and the Detroit Department of Health since 1930, and for the last eleven years has been Director of Communicable Diseases and Epidemiology in the Detroit Department of Health and the Herman Kiefer Hospital. Dr. Top has served for the last three years as Secretary of the Epidemiology Section, A.P.H.A.

DR. SECKINGER APPOINTED DISTRICT OF COLUMBIA HEALTH OFFICER

Announcement was made by the Board of Commissioners of the District of Columbia early in November of the appointment of Daniel L. Seckinger, M.D., Dr.P.H., formerly the Assistant Health Officer and Coördinator of Health and Hospitals, as Health Officer of the District of Columbia to succeed George C. Ruhland, M.D., retired, effective November 3.

Dr. Seckinger, who has served on the Washington staff since 1935, holds M.P.H. and Dr.P.H. degrees from Johns Hopkins University School of Hygiene and Public Health.

The names of five bureau directors who have recently taken over responsibility in the District of Columbia Health Department follow:

Charlotte P. Donlan, M.D., Bureau of Cancer Control

Richard L. DeSaussure, M.D., Bureau of School Medical Inspection

Walter W. Burdette, Bureau of Food Inspection

Carl C. Dauer, M.D., Bureau of Preventable Diseases

J. Edgar Caswell, Bureau of Public Health Education

PERSONALS

MAURICE L. ALLCORN, formerly Classification Analyst for the Indiana State Personnel Bureau, has been appointed director of the Division of Personnel of the State Board of Health succeeding WALTER J. WOLPERT,† who now holds the newly created position of executive assistant in the Bureau of Local Health Administration.

M. ROBERT BARNETT, blinded at the age of 15 and the youngest director ever to head a national organization for the blind, is new executive director of the American Foundation for the Blind, with headquarters in New York City.

ESTHER B. BARTLETT, R.N.,† formerly director of nurses, Wood and Sandusky Counties, Ohio, has been made superintendent, Bureau

* Fellow A.P.H.A.
† Member A.P.H.A.

of Public Health Nursing, Toledo, Ohio, Health Department.

GARRY G. BASSETT, M.D., has succeeded WALLACE J. BENNER, M.D., as Health Commissioner, Lakewood, Ohio

CHARLES H. BENNING, M.D.,* formerly chief of Public Health for Office of Military Government, U. S. Sector of Berlin, has been appointed Chief of the Public Health & Welfare Branch, Office of U. S. High Commissioner Government for Land Hesse.

MARY S. BITNER, M.D., for 3 years assistant professor of hygiene, Iowa State College, recently became Director of the Maternal and Child Health Division, Nebraska State Department of Health.

KATHLEEN BOLAND,† a graduate in public health education from the Columbia University School of Public Health, has been appointed assistant director of health education in the Erie County (New York) Health Department.

GORDON E. BROWN, has succeeded ROBERT V. TITUS as director of public relations and fund raising for the New York State Charities Aid Association.

MARY LEE BROWN, R.N., B.S., M.P.H.,* director of public health nursing and associate professor of nursing education, Meharry Medical College, has been awarded a Commonwealth Fund fellowship and is on a year's leave of absence to study the Social Aspects of the Medical Care Program in Great Britain, under the direction of the London School of Hygiene and Tropical Medicine.

MARGARET CAIN, who has been Executive Secretary of the Oswego County (New York) Tuberculosis and Health Association for the last 3 years, has resigned to accept a staff position with the Rochester-Monroe County Tuberculosis and Health Association, Rochester, N. Y.

J. BERRY CHRISTIAN, has begun her duties as a clinical nurse for the Sweetwater-Nolan County (Texas) Health Unit.

DAVID COWGILL, M.D.,* former director of the Abilene-Taylor County Health Unit in Texas, is now Health Officer of Eau Claire City and County, Wis.

ETHEL DAVIS, senior staff nurse, Cortland County (New York) Health Department has resigned to become elementary school nurse in the City of Cortland.

RICHARD E. ELVINS, M.D.,† formerly director of the San Angelo-Tom Green County Health Unit, Texas, is now chief physician at the Texas Medical Center, a unit of the Medical Department of the Phillips Petroleum Company, Phillips, Tex.

PAUL S. FANCHER, COL., MC., USA, assumed duty in August as Chief of Medical Service, Walter Reed General Hospital. He succeeds COLONEL CHARLES R. MUELLER, who has been transferred to Murphy General Hospital, Waltham, Mass.

SAUL FRANCES, M.D.,† formerly a member of the Department of Bacteriology, College of Physicians and Surgeons, Columbia University, has become Director of Wells Laboratories, Inc., Jersey City, N. J., to provide consultant service plus research and testing facilities to commerce and industry.

JOE W. GREEVER, D.D.S., formerly in private practice, has joined the Division of Preventive Dentistry, Oklahoma State Department of Health, to do clinical work in local health departments throughout the state.

WILLIAM MASON HALE, M.D.,† has been named head of the bacteriology and virology division, and SIDNEY C. MADDEN, M.D., of the pathology division of the Department of Medicine at Brookhaven National Laboratory (New York), northeastern center for nuclear research. Dr. Hale formerly was professor and head of the Department of Bacteriology of the College of Medicine, Iowa State University, and Dr. Madden was professor and chairman of Department of Pathology, Emory University School of Medicine, Atlanta, Ga.

NANCY L. HANEY, for the past 2½ years associate editor of the Publications Department of the Y.W.C.A., National Board, has been appointed assistant to the public relations director of the Committee on Careers in Nursing.

RALPH E. HEAL, PH.D., formerly with Merck & Co., Rahway, N. J., has been appointed Technical Director of the National Pest Control Association, Brooklyn, N. Y.

MARTIN D. HICKLIN, M.D., M.P.H.,† is the new medical director, Iowa State Health Department District Health Service No. 9, with headquarters in Burlington, and director of the Des Moines County Health Department.

MARY WILLIAMSON HOOKER, formerly director of fashion publicity for Cecil & Presbrey, New York City, has been named director of public relations for the New York Tuberculosis and Health Association.

GUSTAVA JONES, R.N., formerly with the Omaha Visiting Nurse Association, has accepted a position in the Tuberculosis Control Division, Nebraska State Health Department.

MARY KARPIAK,† formerly health educator of the Onondaga (New York) Health Association, has been appointed to a similar position in the Rochester City Health Department.

JEANNE HESS KEENER, has succeeded JESSIE S. GLASS as supervisor of health education and program development, Tuberculosis Society of Lancaster County, Pa.

ANDREW W. KOVACS, for the past 4 years research editor, Michigan Tuberculosis Association, is now director of health education, Tuberculosis League of Pittsburgh.

CARL L. LARSON, M.D., formerly assistant chief of the Laboratory of Infectious Diseases, Microbiological Institute, National Institutes of Health, is now Director of the Rocky Mountain Laboratory of the Public Health Service, succeeding RALPH R. PARKER, M.D., deceased.

CHARLES H. MANN, M.D., DR.P.H.,* formerly associate director, Department of Public Health, E. R. Squibb & Sons, is now medical director of the Heyden Chemical Corporation, New York, Professional Products Division.

H. BERTON MCCAULEY, D.D.S., became on August 1 the first full-time director of the Bureau of Dental Care in the Baltimore City Health Department.

FLORENCE L. MCKAY, M.D.,† director of the Division of Maternal and Child Health, Massachusetts State Department of Health since 1936, retired on October 31.

FRED P. MEYERS, PH.D., who has been doing polio immunization research for the National Foundation for Infantile Paralysis, joined the staff of the Colorado State Health Department as Assistant Director of the Laboratory Section.

CLARICE L. H. PENNOCK, who served as Secretary of the National Conference on Family Life, will direct a new program of field work in the four social science departments of Vassar College (Poughkeepsie, N. Y.) under a five year grant from the Carnegie Corporation.

DAVID L. PIPER, PH.D.,† director of health education, Oregon State Health Department, has resigned to become health education consultant, Institute of Inter-American Affairs of the U. S. State Department, where his first assignment will be in Lima, Peru.

BENEDICT RAMIN, M.D.,† child welfare physician in the Division of Tuberculosis, Massachusetts State Department of Health since 1931, is now tuberculosis consultant in the Boston branch office of the Veterans Administration.

VERNE ROBINSON, has been appointed Director of the Division of Public Health Statistics, Indiana State Department of Health, succeeding ROBERT E. SERFLING, PH.D.† who resigned to join the U. S. Public Health Service.

JONAS E. SALK, M.D.* has been promoted to the position of research professor of bacteriology in the School of Medicine, University of Pittsburgh. He is directing the work of the school's virus research laboratory concerned with problems in influenza and poliomyelitis.

DOROTHY E. SCHOBER, M.P.H.,† who for the past 3 years has been health education consultant, New Haven Health Department, became heart work consultant for the New York State Committee on Tuberculosis and Public Health, New York, on November 1.

WILLIAM H. SEBRELL, M.D.,* director of the Experimental Biology and Medicine Institute of the National Institutes of Health, has been appointed a member of the Joint Expert Committee on Nutrition of the Food and Agriculture Organization and the World Health Organization.

CLAUDE A. SELBY, M.D.,* formerly director of the Cameron County Health Unit in Texas, has been appointed director of the new San Patricio County Health Department, with headquarters in Sinton.

JAMES SPROUSE, a recent law graduate of Columbia University, New York, has been employed by the West Virginia State Department of Health to make a thorough search of the Minutes of the Public Health Council and the Code of West Virginia, so that an up-to-the-minute edition of all public health laws and regulations now in force may be obtained.

JOHN S. STANLEY, M.D.,† superintendent of preventive medicine, Indianapolis City Board of Health for the last 3 years, has gone to Tokyo where he will act as public health officer under GEN. DOUGLAS MACARTHUR.

WILLIAM H. TURVILLE, M.D., recently retired from the U. S. Naval Medical Corps after 32 years' service, has been named an epidemiologist in the Division of Tuberculosis, Massachusetts State Department of Health.

HARRY E. UNGERLEIDER, M.D.,* Medical Director of the Equitable Life Assurance Society of the United States, New York, was recently elected President of the Association of Life Insurance Medical Directors at the New York meeting.

FLORENCE WALT, social hygiene educator, Nebraska State Health Department since 1943, has resigned to become Dean of Women and Health Education Instructor at Doane College, Crete, Neb.

LOUIS F. WARRICK,* formerly director, Bureau of Sanitary Engineering, Wisconsin State Department of Health, has been appointed Chief of the Technical Services Branch of the Water Pollution Control Division, Pub-

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* Fellow A.P.H.A.
† Member A.P.H.A.

lic Health Service, with the rank of Senior Sanitary Engineer.

ORLEN J. WIEMANN,† formerly sanitarian, Eau Claire City-County Health Department (Wisconsin), is now in charge of the food sanitation unit, Colorado State Health Department.

DOROTHY WILSON,* formerly assistant professor in nursing education, Teachers College, Columbia University, is the newly appointed director of the New Haven (Conn.) Visiting Nurse Association.

VIRGINIA M. WILSON, formerly nutrition field representative, American Red Cross, is now on the nutrition staff of the West Virginia State Department of Health.

RECENT ADDITIONS TO THE ALASKA TERRITORIAL DEPARTMENT OF HEALTH:

RHODA COLLINS, is associate nutrition consultant, stationed at the Anchorage Branch Office.

EDWARD O. HOPKINS, formerly District Sanitary Engineer for the Texas Department of Health, has become District Sanitary Engineer of the Fairbanks district office.

VIRGINIA MCMULLIN AND ANN MARIE KINGSTON, associate public health nurse and public health nurse respectively, have joined the staff of the Anchorage Health Center.

WILLIAM L. PORTER, formerly engaged in river pollution control for the state of Nebraska, is district sanitary engineer for Southeastern Alaska.

ROBERT L. SMITH, M.D.,† formerly Director of the Tuberculosis Control Bureau, New Orleans Department of Health, is now assistant commissioner of health, stationed at the Anchorage Branch Office. He will direct all Interior health department activities such as x-ray surveys and special programs.

MARGERY THOMPSON, formerly of the University of California Hospital in San Francisco, is now associate public health nurse to the Fairbanks Health Center.

MARIBETH T. TURNER, formerly in health and welfare public programs of Alabama and Louisiana, is associate medical social consultant, Anchorage Branch Office.

NORMAN R. WITZEL, M.D., who recently completed his interneship at Seattle General and Children's Orthopedic Hospital in Seattle, is a field physician, and his wife, a public health nurse, stationed on mobile units.

RECENT CHANGES IN PERSONNEL SERVING PUBLIC HEALTH DEPARTMENTS IN OREGON ARE:

EVELYN AIELLO, M.D., is full-time Deputy Health Officer for Multnomah county.

WILLIAM S. MCINDOE, replaces KENNETH FLOCKE, Chief Industrial Hygiene Engineer, now on nine months educational leave, and JOCELYN FANCHER as Audiometrist to succeed BARBARA SCHREINER, resigned.

FREDERICK F. RAWLS, M.D., is full-time Deputy Health Officer for Clatsop county, to fill in for LEONARD M. KAHL, M.D., on educational leave.

BERNICE SMITH, was appointed as Clinic Nurse in Douglas County Health Department.

DEATHS

IRVIN ABELL, M.D., president of the American Medical Association in 1939 and president of the American College of Surgeons in 1947, died August 28.

CALVIN C. KIKER, C.E.,† Chief Engineer, Malaria Control Division, Health and Safety Department, Tennessee Valley Association, Wilson Dam, Ala. (Engineering Section).

WILLARD C. MALLALIEU,† Engineer for the Jersey City Water Works, Boonton, N. J. (Engineering Section).

CONFERENCES AND DATES

American Association for the Advancement of Science. New York, N. Y. December 26–31.

American Association of Schools of Social Work. Milwaukee, Wis. January 22–24, 1950.

American Statistical Association. New York. N. Y. December 26–29.

American Water Works Association:
Southeastern Section. Gordon Hotel, Albany, Ga. December 5–7.
New York Section Midwestern Luncheon. Hotel Statler, New York, N. Y. January 17.

Arkansas Public Health Association. Robinson Memorial Auditorium, Little Rock. December 8–9.

Community Chests and Councils of America. National Conference. Cincinnati, Ohio. February 1–4, 1950.

Illinois Public Health Association. Leland Hotel, Springfield, Ill. April 20–21, 1950.

Maternity Center Association. Annual Meeting. New York, N. Y. January 19, 1950.

National Conference on Cardiovascular Diseases. Mayflower Hotel, Washington, D. C. January 18–20, 1950.

National Conference of Social Work. Atlantic City, N. J. April 23–29, 1950.

National Council on Family Relations. New York, N. Y. December 29–31.

National Health Council. Annual Meeting. New York, N. Y. March 24, 1950.

National Social Welfare Assembly, Inc. Annual Meeting. New York, N. Y. January 19–20, 1950.

National Society for the Prevention of Blindness. Annual Conference (held in conjunction with interim meeting of Pan American Association of Ophthalmology). Miami Beach, Fla. March 26–30, 1950.

National Tuberculosis Association. Annual Meeting. Washington, D. C. April 24–28.

New York State Health Conference. Lake Placid, N. Y. June 5–8, 1950.

Southern Branch, American Public Health Association. Birmingham, Ala. April 27–29, 1950.

Western Branch, American Public Health Association. Portland, Ore. May 30–June 1, 1950.

AN INTRODUCTION TO MEDICAL STATISTICS

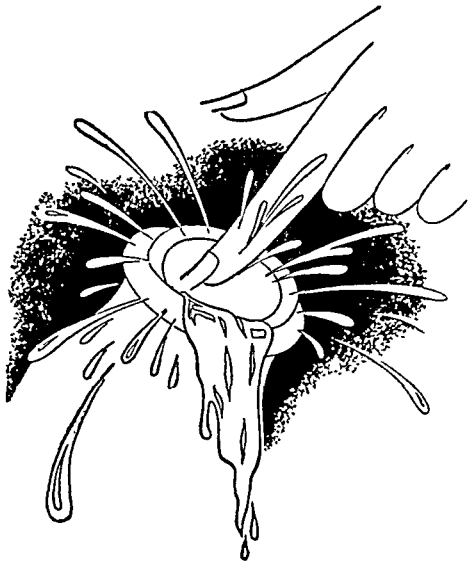
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